Railway Age Gazette

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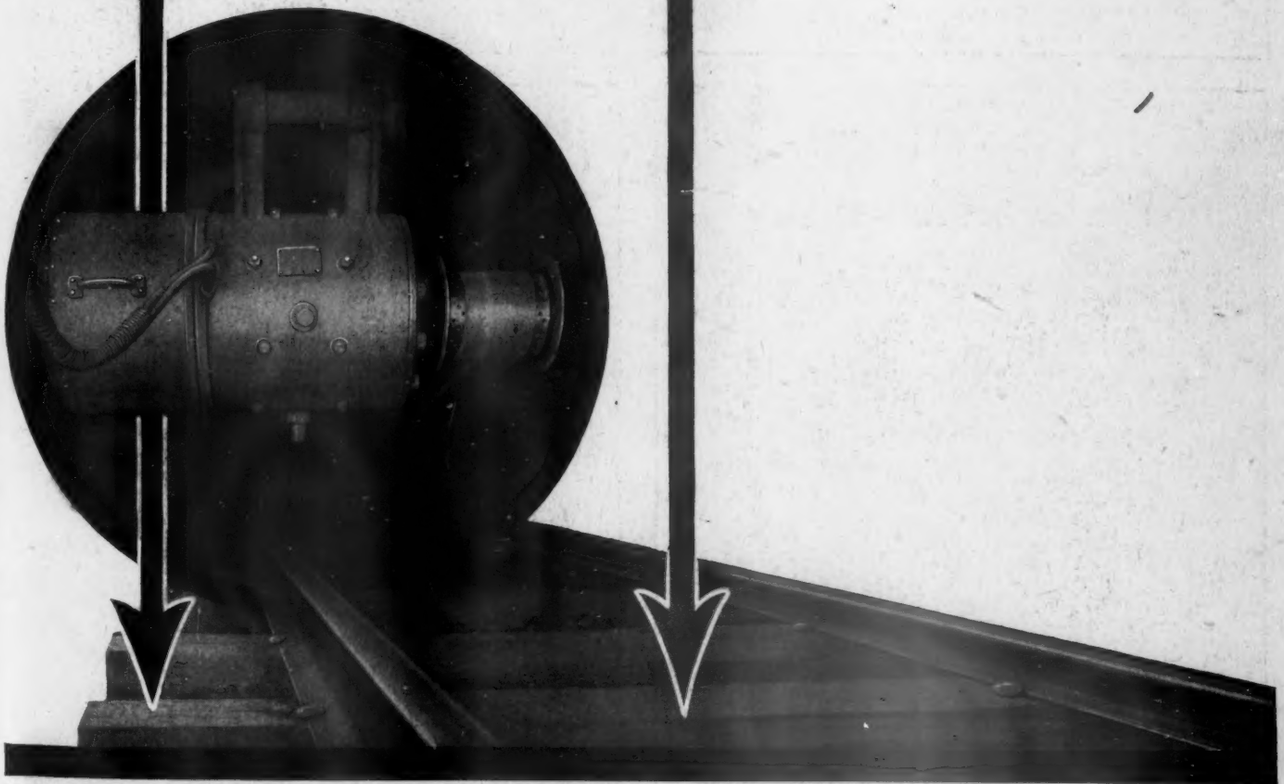

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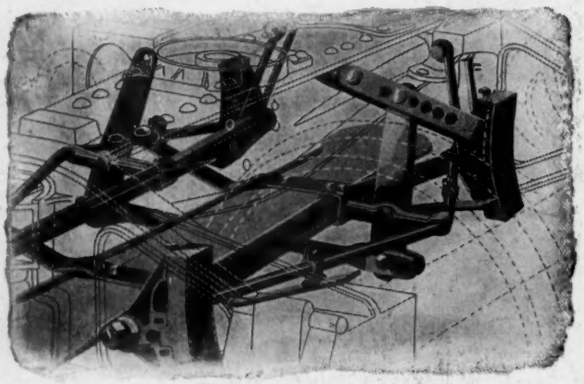

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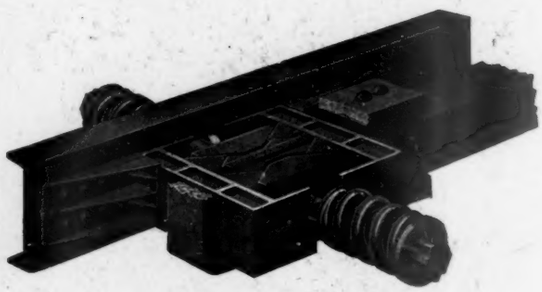

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Railway Age Gazette

Volume 63 December 14, 1917 No. 24

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Derelict in the Discharge of Its Duties

Slacker "is a useful expression designed to describe a person or institution derelict or negligent in the discharge of certain duties toward his government or country," says C. M. Larson, engineer of the Railroad Commission of Wisconsin, in a letter printed elsewhere in this issue. Mr. Larson objects strongly to applying it to states that, prescribing by law a two-cent passenger rate on intrastate business, place the burden of unprofitable passenger service rendered to its citizens on the citizens of other states. It is the merest quibble to say that Wisconsin permits charging a higher passenger rate for roads earning less than $3,500 gross per mile. The Illinois Central, which heads Mr. Larson's list, operates about 100 miles in Wisconsin and runs two passenger trains each way each day over this mileage. The out-of-pocket cost of operating these trains, together with maintenance of way expenses and maintenance of passenger equipment expenses, would amount to over $2,000 per mile, leaving less than $1,500, even with three-cent passenger fares, for operation and maintenance of freight trains and equipment and interest charges. Even Wisconsin cannot get blood out of a turnip and need take no credit to herself for that fact. One of the vital needs that is being brought home by the war to every thinking man in the country is the necessity of an adequate and evenly developed transportation system. Two-cent-passenger-fare state legislation has done much to render this impossible, but past selfishness does not make a state a slacker: it is continuance in this attitude in the face of a national crisis that makes an "institution derelict . . . . in the discharge of . . . duties towards its . . . country."

Use of Private Cars In War Time

Fairfax Harrison, chairman of the Railroads' War Board, has issued a bulletin to the railroads suggesting that during the period of heavy passenger traffic the use of official and private passenger cars should be limited in order to relieve overburdened passenger trains and that no such cars be handled, either in free or pay service, except for the accommodation of railroad officers when traveling on necessary railroad business. This is a matter which ought not to require suggesting more than once. The Interstate Commerce Commission in its decision in the five per cent rate case made a similar suggestion to the railroads as a measure of economy. It is especially pertinent at this time when not only passenger traffic is heavier than ever before, but the railroads are overtaxed in almost every direction and are straining every nerve to handle the necessary traffic of the country. After the roads have done everything they have felt possible in the way of reducing unnecessary passenger service, particularly branch line and local service, it does not help them in the eyes of the public to handle any more private cars than necessary. Of course, there is a sharp distinction, which the public does not usually appreciate, between the official car which is the railroad officer's traveling office, and which is indispensable on many occasions, and the private cars used by various persons who can afford to pay for them or who are allowed free transportation, including the families of directors and officers, and who use them for the sake of luxury and exclusiveness rather than for business reasons. Everyone who has accompanied railroad officers on important trips, for example, knows that their cars are in no sense "private" but are as much a workshop as the office at headquarters and not only enable the railroad man to keep up his office work while on the road but are often occupied by a dozen or more people who ride a short distance with him for conference. Such cars are just as necessary in these times as in any others, if not more so; but the same facts do not apply to the private cars whose use by the occasional parasites on the railroad organization are responsible for the public criticism of all so-called "private" cars.

Mr. Adamson and His Law

If our freight trains could be run at 12½ miles an hour where now they are run at 10 miles an hour, the cars would be one-fifth less time on the road and "there would be one-fourth more cars available for service at all times." This remarkable bit of economic wisdom comes from the Honorable William C. Adamson, representative in Congress, and putative author of the "eight-hour law" for trainmen. It is found in an interview in the New York Tribune of December 2. Mr. Adamson has resigned his seat in Congress and is to take a government position in New York City to which President

Wilson has appointed him; and this interview may perhaps be intended as his farewell address to the people of the country. The fact that freight cars average only about two hours a day on the road (spending the other 22 hours in yards or shops) reduces his calculated increase in car supply about 90 per cent, and makes in his pleasing picture a slight dent which, evidently, he had not thought of. That an increase in speed of trains would reduce the income seriously, because of the necessary lightening of the load, is another fact; and this would neutralize the remaining ten per cent of the supposed savings. This, also, the congressman may have forgotten, though he has been told it often enough. Mr. Adamson's interview indicates that he is a victim of misplaced confidence. He got his law passed (ostensibly) to aid the trainmen in getting shorter hours, but he finds now that "the railroads, every one of them, have agreed with the employees to run the same hours as before. . . They seem to forget that the operating officers and the employees are compounding a felony." It must be truly depressing to find that the trainmen are as wicked as the capitalists whom they work for. In one little item of the interview there is a bit of light; Mr. Adamson has told President Wilson that there is no need of an investigation by the Goethals committee concerning the operation of the "eight-hour" law. The facts are well enough known already. This ought to mean a saving of government money. Mr. Adamson has varied troubles. He says "In San Francisco I found myself sitting next to a railroad president at a banquet, and he began sniping at me with complaints about the eight-hour law. I asked him if his road had ever paid any attention to it, other than paying the men overtime, and he admitted it had not." Sniping is, indeed, an underhanded method of calling a congressman to account. Such tactics are in marked contrast to the above-board methods of the trainmen when they sat in the Congressional galleries with their stop watches in their hands, on the occasion of the passage of the Adamson law.

Giving the Facts About Depreciation

The report of the Committee on Railroad Securities of the Investment Bankers' Association of America contained a suggested form for a standard railroad annual report to stockholders. The form combines the good features to be found now in various companies' reports and contains some suggestions for information to be given to stockholders which so far as we know no company is now including in its annual report. In one particular at least, however, the information called for is not as complete as it should be. This is in regard to depreciation. The form suggested for annual reports calls for a statement of the rules and rates which the company used to determine the amounts charged to operating expenses for depreciation, which is good so far as it goes. A specific statement should also be included showing the percentage of the original cost which has been written off through depreciation for each class of equipment. It is, of course, now possible to make a rough estimate by comparing the total credit through depreciation with the book value of the equipment as shown on the balance sheet, but a statement showing specifically the percentage of cost of locomotives, of freight cars, of passenger cars, etc., which has been written off would be of great value. The practice of different roads in regard to the method of figuring depreciation of equipment when partial renewals are made, etc., is in many instances very complicated, and while the companies have to stand ready to justify whatever system they use before the Interstate Commerce Commission, this does not help the layman stockholder to form an opinion as to how ample depreciation charges are. Furthermore, a company ought to state in its annual report specifically whether the amounts charged for depreciation are set aside or are used in the purchase of bonds for sinking fund or of new equipment, or as is now generally the case, simply a part of general assets, no more readily available for use in buying new equipment than are any of the other general assets. If a board of directors had to state specifically that the average years in service of all their locomotives was 20, and that only 25 per cent of the original cost of these locomotives had been written off through depreciation, and that this depreciation was a book charge only and that if new equipment had to be bought next year funds would have to be borrowed to pay for it, it would have a salutary effect in preventing such a condition from existing.

THE IMPENDING GOVERNMENT CONTROL OF RAILROADS

AT the time this editorial is being written the railroads of the United States are passing through the most important crisis in their history. The determination as to whether they shall continue to be operated under the direction of the Railroads' War Board or their management shall be delegated to some government officer or board is entirely in the hands of President Wilson. The indications are that control of operation through some government board or official will be undertaken.

It is worth while at this time when the fate of the railways during the war is hanging in the balance to inquire, first, why serious consideration is being given to government operation and, second, what results, if any, probably can be secured under government operation which could not be obtained under private operation directed by the Railroads' War Board.

* * *

If the government assumes control it will not be because the railroads have "broken down" or because the War Board has failed. The railroads have handled this year 15 per cent more freight business than they did last year, and during the first six months after our country entered the war they handled 50 per cent more business than in the same months of 1915. That does not indicate any "break down." The same facts which show that they have not broken down also demonstrate that the Railroads' War Board has not failed. It was appointed to operate the railways as a single system in order to enable them to handle the maximum practicable business.

Commissioner McChord, in his dissent from the special report on the railroad situation which the majority of the Interstate Commerce Commission sent to Congress last week, tried to show that the Railroads' War Board had not succeeded in operating the railways as a single system and that no voluntary railroad committee could do so. The evidence he cited in the case of the War Board is the measures adopted to relieve the congestion in eastern territory. But this was trying to prove that the War Board was not doing the very thing the evidence he cited showed it was. Nobody, we suppose, assumed last April when the railways agreed to operate as a single system, that all the measures necessary to carry out this plan would be adopted instantly. It was to be expected that needed measures would be adopted as conditions showed the need of them. This is what has been done. First, box cars were pooled. Next all freight handled in connection with the construction of the cantonments was divided between the different railways and moved over the lines of least resistance. Next, the same principles were applied in the handling of troops and of supplies for the troops. Finally, when the congestion developed in eastern territory further measures were adopted to apply the same general principles. The effort of the War Board has been to pool railway equipment and service, *in so far as necessary*, to move the maximum traffic.

In order to handle more traffic it will be necessary to secure still greater co-ordination in the operation of the

facilities of the various railways, and this, sooner or later, will make desirable and even necessary the use of methods not conforming to existing laws. For this reason, as the *Railway Age Gazette* began pointing out editorially some weeks ago, and as the Interstate Commerce Commission pointed out in its special report to Congress last week, the suspension of the Sherman anti-trust law and the anti-pooling law is extremely desirable. Furthermore, railway equipment is being worn out, and if efficiency is to be maintained and increased, the least that must be done is to let the roads get enough new facilities to replace those being worn out. But because the War Board has not done everything at once —because to enable it to secure the greatest efficiency it is desirable that certain laws be suspended, and that means be provided for enabling the railways to maintain and enlarge their facilities—it does not follow that the Railroads' War Board has failed. On the contrary, it has done wonders.

The government has created various agencies in Washington to deal with new conditions resulting from the war. The *Railway Age Gazette* asserts, as a result of careful observation both in Washington and elsewhere, that the Railroads' War Board, up to the present, has accomplished far more in the direction of helping win the war than any agency which the government itself has created since this country entered the war. And yet it is now proposed to set aside the Railroads' War Board, or at least subordinate it.

* * *

Why is this step probably going to be taken? The reasoning which has prevailed in Washington runs as follows: The operation of the railways should, in the interest of the highest efficiency, be left in the hands of their present managers. But the laws which interfere with securing their greatest efficiency should be suspended or repealed and the government should in some way help the railways to provide the facilities which they require for replacements and to increase their capacity, and should give them its support in one form or another in securing the earnings and the new capital required for this purpose. Now,—so this reasoning runs—as long as the railways are left to the management of their own officers Congress will refuse to suspend restrictive laws or to enact any legislation for the purpose of giving them loans or guarantees of any kind. Therefore, the government, in order to get Congress to do its duty in the matter, must assume control of operation.

The Railroads' War Board has met this argument by saying, in a statement to Senator Newlands, that the railroads do not at present ask a suspension of the Sherman anti-trust law or the anti-pooling law, and that they will not need government loans or guarantees if the Secretary of the Treasury and the Federal Reserve Board will co-operate with them in raising new capital on the railways' own credit. The railways would welcome suspension of restrictive laws and the aid of government loans or guarantees if these things could be secured without throwing the whole railroad question into the maelstrom of politics; but their managers feel that they can work out the problem of securing maximum efficiency without the suspension of the laws or government loans, and that it would be better for the country to let them do this than either to throw the whole railroad question into Congress or to appoint a government railway administrator.

Why does the belief prevail that Congress, in spite of the fact that the Interstate Commerce Commission has practically recommended it, will refuse to suspend restrictive laws or give the railways any financial aid, direct or indirect, so long as the railways are left in the hands of their own managers? We have asked that question in Washington within the last few days of many people, and a great majority have made the same answer. That answer has been "politics." We have made the interesting discovery that business men, government people and newspaper correspondents in Washington have the poorest opinion of Congress which obtains in any part of the United States. Down there they always assume that under any and all conditions, in dealing with any and all questions, Congress will be governed, not by public considerations but solely by political considerations. The reasoning there about the railway situation is that congress would not think it good politics to leave the railways in the hands of their own managers and at the same time give them any assistance by the suspension of restrictive laws, by loans or otherwise. But, it is argued, the railways must be given some kind of government help. Therefore, there must be created some government authority to supervise their operations so that Congress can be induced to give them the necessary aid. All of which is not very complimentary to Congress; but, as already said, it is the reasoning that is prevailing in Washington.

Of course, the doctrinaire advocates of government ownership do not reason thus. They believe that the adoption of government operation would result in an increase of efficiency and thus bring government ownership nearer. But the number of persons who reason thus in Washington seems to be small. It is generally understood that President Wilson himself is opposed to government ownership; and that even though he should decide in favor of government operation he would regard it merely as a war measure, to be abandoned at the end of the war.

* * *

Since some form of government operation or at least of government supervision of operation seems probable, the question naturally arises as to what will be gained and what will be lost by it. The Railroads' War Board has publicly gone on record with the opinion that government operation could not result in any increase in the efficiency of the use of existing railway facilities which could not be secured without it. The ablest railway managers in the country have for months devoted all their energy and ability to operating the exisiting facilities with the greatest practicable efficiency. To assume that any railway officer, merely because he was clothed with governmental authority, could accomplish more than they have is absurd, and to suppose that any man without experience in railroad management, even though clothed with governmental authority, could accomplish as much as they have, is equally absurd.

There is very great danger that the adoption of government operation will result in a serious reduction, rather than in any increase, of railroad efficiency. Railway officers, no matter how patriotic, are likely to feel disappointment and chagrin if the government takes control. It tells them, in effect, that they have failed and that the government does not trust them. The effect may be to impair, and even seriously impair, the official morale. A government railway administrator, if free from restrictive laws and enabled to raise and spend money where the railway managements have been unable to raise and spend it, might be able to do some important things which the railway managements have not been able to do. But any advantages which might result from these things would not be secured for months, while the effects of the impairment of the official morale would be felt at once and might easily continue to be so serious as to more than nullify the effects of all that a government administrator could do.

If the government should assume control of operation, it might limit or perhaps even prevent the impairment of official morale by adopting one or the other of two alternatives. It might appoint as the government railroad administrator an eminent railway executive whose ability and experience would inspire the confidence of railway men. Or it might appoint a railway administrator who was not a railway man, but with the understanding that, while he would exercise the authority of the government in so far as might be necessary, he would leave the actual operation of the railroads in the hands of the existing organizations. If the government

should appoint as the railway administrator a man without great experience and demonstrated ability in railroad affairs, and he should attempt to supplant the existing organization in the management of the railways, there would result a serious demoralization.

Unfortunately, our experience with government regulation has not been such as to encourage the hope that a government administrator, unless he were an experienced railway officer, would show the needed self-restraint and good judgment. The present railroad situation is due ten times as much to faults of railroad regulation as to faults of railroad management; and the effects which have been produced by the wrong kind of railroad regulation should serve as a warning which would prevent the adoption of government railroad management of the same misguided and destructive kind.

* * *

However, no matter how unwise railway executives and other railway officers may think that the adoption of government management may be at this time, no matter how unwise they may think the kind of government management adopted is, their duty will be clear. The country is involved in the greatest war ever known. Its future is at stake, and the outcome of the war will depend largely upon how railway executives and railway officers generally continue to do their work. The responsibility and burden of carrying on the war so far as this country is concerned rest chiefly upon one man. President Wilson, in carrying this responsibility and burden, ought to have, and if he is to bear them successfully, must have, the loyal and energetic support of every American citizen. He has done his best to settle the question of railroad management in that way which will most effectively promote the interests of the country. Once he has decided the matter, "Ours not to reason why, ours but to do and die," should be the motto of all railway men.

It was all right before the United States entered the war for people to discuss whether it ought to enter the war. Once it had entered, the first duty of every citizen became that of helping to make its participation in the war a success. So it is all right to discuss the desirability of government operation until it has been adopted. Once it is adopted, however, it will become immediately the first duty of every railway man to do all that is possible to make government operation a success. Nine railway men out of ten believe that the adoption of government operation is unnecessary and a mistake. But it is as much the duty of citizens to help prevent mistakes on the part of the government from having bad effects, as to help prevent the mistakes from being made. The one great object of all at present should be to help win the war; and whether the railways are under private management or government management the one way in which railway men can contribute most toward helping win the war is by contributing all they can toward efficient railroad operation.

FEDERAL LOCOMOTIVE INSPECTOR'S REPORT

THE report of the chief inspector of locomotive boilers to the Interstate Commerce Commission reflects to some extent the condition of the power on the railways in this country. While the percentage of locomotives found defective has increased from 47 per cent in 1916 to 54.5 per cent in 1917, the power throughout the country is believed to be in as good condition as it was at the end of the last fiscal year. The increase in number of defective locomotives shown is largely due to the fact that many roads have placed in service a considerable number of old locomotives which, under ordinary conditions, would have been scrapped and replaced, and they have done this without paying sufficient attention to their condition. The number of classified defects relating to the boiler and its appurtenances is found to have increased over last year a much greater amount than the defects to the other parts of the locomotive and tender. This also is due primarily to the fact that old locomotives have been placed in service without proper inspection.

A careful examination of the detailed report of defective locomotives found on the individual roads shows that many roads have materially improved the condition of their power over last year, while some have not as good a record as last year. This is evidence that, as the chief inspector says in his report, the power can be properly maintained even under the present exacting operating conditions. He calls attention to the necessity for careful supervision of repairs made to locomotives, and this cannot be emphasized too strongly, for it is practically the only way by which a road may be sure of its power. An engine failure under the present traffic conditions is far more costly than under ordinary conditions, and it is far better to hold a train for a good locomotive than to send it out with one that is liable to fail and cause delays to many other trains. The running repairs must be carefully made and all repairs should be thoroughly inspected to see that they have been made properly.

The number of locomotives inspected this year was less than last year, owing to the fact that the inspectors in this department have at times been used on Interstate Commerce Commission business other than locomotive inspection. An abstract of the chief inspector's report to the Commission is published elsewhere in this issue.

BUY IN HASTE AND REPENT IN LEISURE

WITH a condition confronting the railroads under which performance is of much greater importance than economy, at a time when there is an extreme shortage of labor, great impetus has been given to the demand for labor-saving equipment of all kinds. Under normal conditions machinery designed to save man power is installed only after investigation clearly demonstrates the economy of the installation, but at present the prime condition imposed is that the equipment will bring about an increased production per man. Under such circumstances it is to be expected that the lack of careful study of the possibilities of such equipment which has retarded its application during normal times is now almost sure to result in its unwise and therefore disastrous use in certain cases unless preventive measures are taken before the damage has been done.

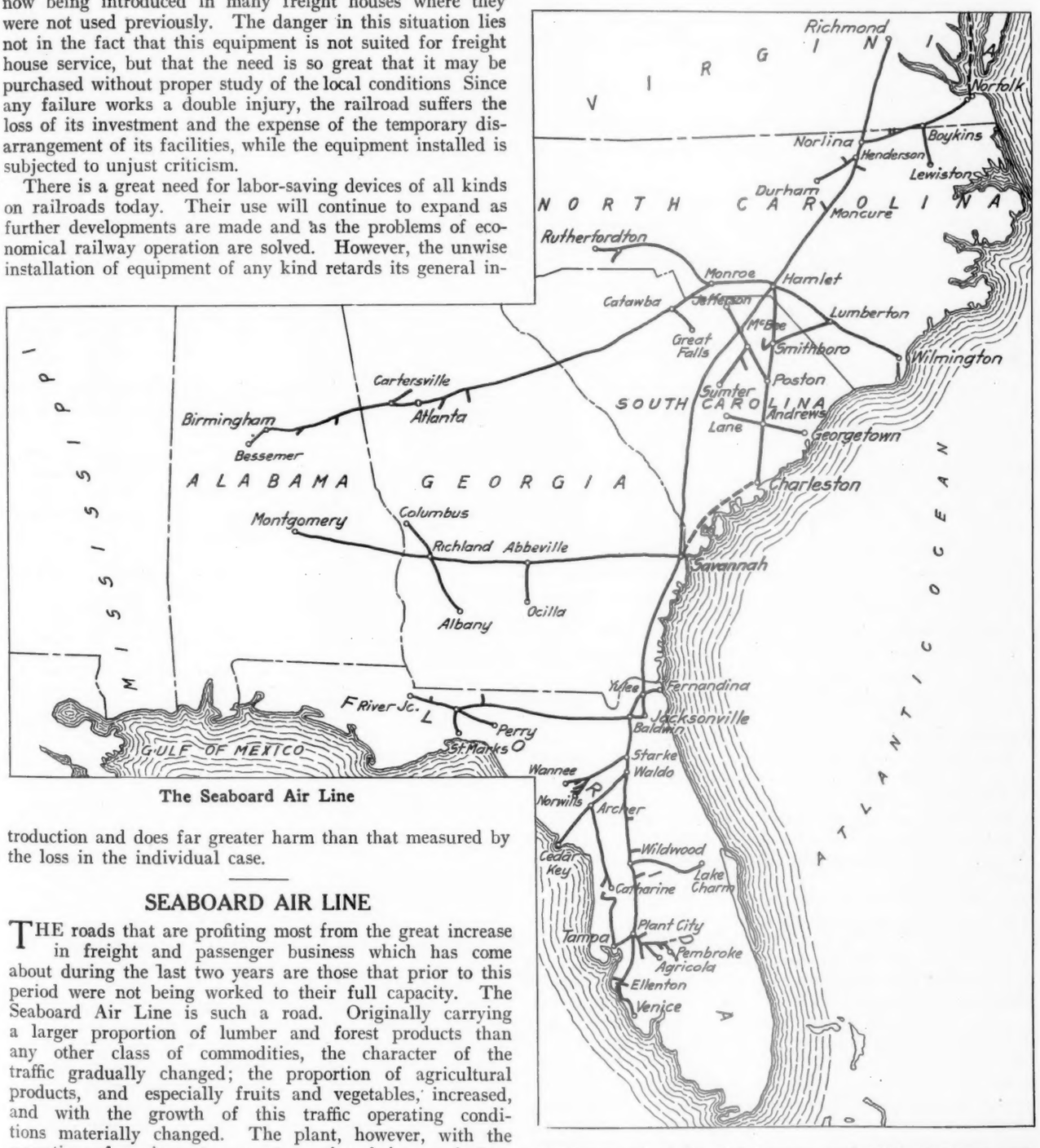
Take the case of the freight house truck. The relative merits of the two-wheel and the four-wheel truck commonly used in handling freight have been discussed so frequently that further mention seems almost superfluous. The advantages of the four-wheel truck in saving man power and reducing freight house costs under the usual conditions, whether used with tractors or without them, have been demonstrated repeatedly where care has been taken to secure equipment suited to the local situation and to modify the operating methods to meet the limitations of the new equipment. Notwithstanding this, trials with the four-wheel truck in certain cases have resulted in their subsequent abandonment for one of two reasons; either the situation was one to which the trucks were not suited or their trial use was not conducted intelligently.

Personnel is important. The right man should direct an investigation of this kind and in the right way. Before the work is taken up, this man should be fully convinced of the merits of the plan himself, and unless he is entirely in sympathy with it he cannot or will not overcome the obstacles to success. Selection of the equipment is also important; a duplication of the trucks used successfully in some other house will not necessarily be the proper solution in the case in hand. Other features that endanger or may prevent the success of the new installation include failure to redistribute the labor to secure the best results under the new conditions. Success may demand an entire change in the method of

checking or routing the freight through the house. In more than one case failure has resulted from the reluctance of some individual to depart from long-established standards. These and other difficulties, usually surmountable if properly studied, have, in certain instances, prevented the installation of new equipment in the past.

Under press of the prevailing need for reducing the congestion in terminals, the four-wheel truck and the tractor are now being introduced in many freight houses where they were not used previously. The danger in this situation lies not in the fact that this equipment is not suited for freight house service, but that the need is so great that it may be purchased without proper study of the local conditions Since any failure works a double injury, the railroad suffers the loss of its investment and the expense of the temporary disarrangement of its facilities, while the equipment installed is subjected to unjust criticism.

There is a great need for labor-saving devices of all kinds on railroads today. Their use will continue to expand as further developments are made and as the problems of economical railway operation are solved. However, the unwise installation of equipment of any kind retards its general introduction and does far greater harm than that measured by the loss in the individual case.



The Seaboard Air Line

SEABOARD AIR LINE

THE roads that are profiting most from the great increase in freight and passenger business which has come about during the last two years are those that prior to this period were not being worked to their full capacity. The Seaboard Air Line is such a road. Originally carrying a larger proportion of lumber and forest products than any other class of commodities, the character of the traffic gradually changed; the proportion of agricultural products, and especially fruits and vegetables, increased, and with the growth of this traffic operating conditions materially changed. The plant, however, with the exception of equipment, was at no time being worked to anywhere near capacity. Within the last few years a further change has taken place in the character of the traffic handled by the Seaboard. The proportion of manufactures carried has been increasing and a larger traffic in heavy loading commodities, such as stone, sand, etc., has developed. In the calendar year 1915 the total tonnage of freight carried by the Seaboard was 8,920,000 and the freight density (ton-miles per mile of road) 434,000. In the calendar year 1916 the total tonnage carried was 10,496,000 and the density 543,000.

Of the total tonnage carried in 1916 over 35 per cent was manufactures, comparing with less than 34 per cent manufactures in 1915. In 1916 the products of agriculture were 12.89 per cent of the total tonnage, and 1915, 16.72 per cent. Products of mines furnished 24.65 per cent of the total tonnage in 1916 and 23.26 per cent in 1915. With the change in character of traffic in recent years there has taken place a change in operating methods. Competition and the character of traffic had led to the use of high speed, compara-

tively light locomotives for freight service, with fast schedules for freight trains and, of course, high ton-mile costs. Within the last few years, however, heavier locomotives have been put into freight service, the average trainload greatly increased, and what are generally understood to be modern scientific methods of railroading have been applied. In 1911 the average freight trainload of all freight, including company, was 251 tons; in 1916 it was 400 tons. There was a big increase in 1916 over 1915, the average trainload of all freight in 1915 being 337 tons.

The management has replaced Pacific type locomotives in freight service with Mikados and has now ordered 26 locomotives divided between Mallets and Santa Fe type. Difficult as it has been to get deliveries of equipment, the Seaboard expects to receive these heavy locomotives within the next few months.

In 1916 the Seaboard earned $26,184,000, an increase of $3,544,000 over 1915. Expenses and taxes amounted to $18,743,000, an increase of $2,137,000, leaving an increase of $1,402,000 in operating income, the total operating income in 1916 being $7,429,000. A part of this increased income was offset by a debit of $144,000 for hire of equipment as against a slight credit in 1915 on this account and an increase of $290,000 in interest charges. The amount available for interest on the income bonds was $2,862,000 in 1916 and $1,805,000 in 1915. The full 5 per cent on these bonds calls for $1,250,000, which amount was paid in both years, leaving a surplus in 1916 of $1,612,000 as against $555,000 in 1915.

In 1916 the Seaboard had not yet begun to feel the full force of the increase in operating costs which has since hit all railroads so hard. In the nine months of the present calendar year total operating revenues amounted to $21,940,000, and since the winter months are the busiest ones for the Seaboard, this will mean between one and two million dollars increase in gross over 1916 for the year. Total operating expenses for the nine months were $15,579,000. The increase in expenses has been large but had not up to the end of September entirely offset the increase in gross, operating income being $5,361,000 for the nine months ended September 30, an increase over the corresponding nine months of the previous year of $242,000.

Besides the economies that may be expected to follow the placing in service of Mallet and Santa Fe locomotives, the opening of the new line which the Seaboard has built from Charleston, S. C., along the edge of the sea coast to Savannah, Ga., will permit of very considerable economies in operation. A glance at the map will show that this new line, which it is expected will be completed during the present calendar year, will give the Seaboard two lines from Hamlet, N. C., to Savannah, Ga. Grade revision work has been done on the line from Hamlet to Charleston so that the new through line to Savannah will have a maximum 0.5 per cent grade and a maximum curvature of 3 deg. This maximum grade and curvature hold good for the entire line from Hamlet, via Charleston, to Jacksonville, Fla. The new line will permit of an increase in trainloading between Hamlet and Savannah of over 127 per cent.

Considerable other grade revision work is being done, and that between Raleigh, N. C., and Sanford will permit of considerable economies. When the work now in progress is completed on the line from Sanford, N. C., to Hamlet, two pusher grades will have been eliminated and a maximum .5 per cent northbound and .8 per cent southbound grade will have been established. In 1916 a total of $2,027,000 was spent for additions, betterments and extensions to road and a net of $172,000 to additions to equipment. At the end of the calendar year the Seaboard had $2,385,000 cash, exclusive of special deposits with fiscal agencies and trustees, and no loans and bills payable except a nominal amount—$44,000—coming under this classification. The Seaboard is carrying on its balance sheet $5,234,000 discount on funded debt, comparing with $10,878,000 carried on the balance sheet as of June 30, 1916. During the six months June 30 to December 31, $5,273,000 discount on bonds sold in previous years was charged off through profit and loss, leaving a surplus to profit and loss at the end of the calendar year of $5,796,000, comparing with a profit and loss surplus of $8,057,000 as of June 30, 1916.

The Seaboard depends entirely on colored labor for maintenance of way gangs, and the movement of negroes into the North has caused a shortage of section labor comparable to the shortage due to the lack of newly landed immigrants and the demand for industrial labor in the East, and the demand for farm and industrial labor in the West. During 1916 $3,188,000 was spent for maintenance of way, an increase of $557,000 over the previous year. Maintenance of equipment cost $3,910,000, an increase of $635,000 over the previous year. The following table shows the percentage of each class of expenditures to total operating revenues:

	1916	1915
Maintenance of way	12.17	11.62
Maintenance of equipment	14.93	14.46
Traffic expenses	3.47	3.47
Transportation expenses	33.07	35.02
General expenses	2.90	3.32
Total, including miscellaneous	66.96	68.44

The following table shows the principal figures for operation in the calendar year 1916 compared with the calendar year 1915:

	1916	1915
Average mileage operated	3,452	3,409
Freight revenue	$18,211,895	$15,434,241
Passenger revenue	5,348,979	4,781,523
Total operating revenues	26,184,487	22,640,876
Maintenance of way and structures	3,187,544	2,630,459
Maintenance of equipment	3,909,974	3,275,144
Traffic expenses	907,086	785,581
Transportation expenses	8,660,088	7,928,829
General expenses	758,373	750,915
Total operating expenses	17,531,907	15,494,595
Taxes	1,210,691	1,111,381
Operating income	7,428,999	6,026,677
Gross income	7,889,431	6,429,784
Net income	2,862,011	1,804,802
Interest on adjustment (income) bonds	1,250,000	1,250,000
Surplus	1,612,011	554,802

NEW BOOKS

Street Railway Fares. By Dugald D. Jackson, professor of electrical engineering and David J. McGrath, research assistant in electrical engineering at the Massachusetts Institute of Technology. 155 pages, 58 illustrations, 6½ in. by 9½ in., bound in cloth. Published by McGraw-Hill Book Company, Inc., 239 West 39th street, New York.

The contents of this book comprise data collected and conclusions reached in a research on electric railway traffic and fares, which research has been performed at the Massachusetts Institute of Technology. The data on street railway traffic and fares were broadly investigated for many years back, and were carried up to the present. The subdivisions of the main problem taken up comprise the major factors of street railway traffic, which influence the cost of carrying the average passengers and the manner in which these factors affect the practicability of making long hauls for five cents in ordinary street railway service. The data points strongly to certain limitations in regard to fares and hauls, which are intimately associated with the density of traffic, measured either in revenue passengers carried per car-mile run or passengers carried per year per mile of main track. The more important subdivisions of the subject dealt with have been treated in separate chapters, and it is believed that this subdivision of the chapters will make the book more valuable to students of street railway problems.

Letters to the Editor

MOTOR FREIGHT TRUCKS ON HIGHWAYS

AMARILLO, Texas.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

Referring to your editorial on "Highways Helpful to Railways," November 30, page 967.

In the Southwest it is questionable if motor freight trucks are helpful for following reasons: Many improved highways have been built parallel to railways to serve the larger towns. The work is financed by bonds, ultimately paid for by taxing property in the district, largely paid for by the farmers and railways. The carriers for hire on these good roads do not participate in either cost of construction or maintenance; in fact, very often no provision is made for maintenance.

When good roads are built, traffic is concentrated on them and they are soon cut up and become as bad as before and additional taxes are needed for maintenance from property owners. Jitney passenger lines and motor truck freight lines have not paid any taxes in many cases, though the last session of the Texas legislature passed a law taxing them about one million dollars. This is not enough, because taxes on other property have been increased about 50 per cent. The expense of finishing most highways in this district with a surface that will bear heavy trucking is prohibitive.

However, motor trucks can help railways by short hauls to relieve cars for long hauls, especially in intra-city switching movements; the main point to consider is that all motor carriers for hire should be properly taxed to bear their share of maintenance of highways by a special tax.

AVERY TURNER.

ELIMINATE UNNECESSARY VALUATION DETAILS

RICHMOND, Va.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

In the *Railway Age Gazette* of November 30 I read with much interest the editorial on "The Valuation Department and Exemptions." From my own organization 14 men have entered military service. With one exception, all are from my engineering force, and all are fine fellows—men whom I wanted to keep. Only two were drafted. One is now with one of our engineering regiments somewhere in France. The majority of the rest are holding commissions in the infantry and artillery. They should all be attached to our engineering forces. This depletion of my force leaves me shorthanded with vacancies that are hard to fill, especially engineers and draftsmen.

The editorial referred to makes the depletion of valuation forces a plea for the discontinuance of the work of Federal valuation, and in that plea there may be reason. But to me there is in addition a strong plea for a revision of the methods now followed in this work, probably necessary under the Valuation Act, so as to get away from a lot of useless, burdensome and costly details that have no relation whatever to the great and sole object in view in this work—the ascertainment of "Value," of "Final Value." It may be that the ascertainment of "Final Value" is solely a judicial procedure. I leave that question to the lawyers.

I might say much on this phase of Valuation work, but it may be best to "let sleeping lions lie," because if I were to start to talk about a revision of this whole matter, I would begin with the very Act itself, an act that has loaded the Interstate Commerce Commission, as well as the carriers, with a heap of useless, costly work. An Act lacking in constructive statesmanship, burdensome with irrelevancy, and distractingly indefinite.

It may be that the work must go on as it is going on, because of the mandate of the Act. But, while this great work of valuation is important, yet, if it is interfering with the great, paramount duty of our Nation today, then it should be stopped. I leave that question open, although there need be no interference.

I would not plead for the cessation of the work. There are good reasons why it should not stop. But I do plead for common sense in doing the work. Is it too late?

JAMES P. NELSON,
Valuation Engineer.

A QUIBBLE OVER A QUESTION OF DUTY

MADISON, Wis.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

On page 952 of your issue of November 23, 1917, you have published a map which purports to show the rates which each state permits the railroads to charge for passenger fares. A certain area on the map covering eleven states is colored black and these states have been designated "slacker states."

Before considering the fundamental fault that inheres in this analysis due to drawing conclusions from insufficient data, we are constrained to pause to consider the taste displayed by the use of this term as employed in this case. The word "slacker" has come to have a well defined and opprobrious meaning in the English language. It is a useful expression designed to describe a person or institution derelict or negligent in the discharge of certain duties toward his government or country. Phrase makers who attempt to enlarge the meaning of the term so that it may cover any person, establishment or institution against which they desire to inveigh, do much to rob the term of its usefulness in the particular emergency in which our country is involved. A specific term capable of nice use may become a general and meaningless expression through popular attempt to use it to cover situations to which it was not intended to apply. More particularly is the word robbed of its effectiveness when it can be shown that it was employed through no desire to make use of its descriptive force, but was maliciously used to secure the impeaching effect of the opprobrium it was originally designed to convey.

Though no explanation is given on or in connection with the map as to the basis for the figures indicating fares permitted in each state, the actual facts with respect to the state of Wisconsin, at least, dispute the correctness of the data shown thereon.

Under the laws of Wisconsin a railroad whose gross receipts amount to $3,500 per mile per annum is not permitted to charge more than two cents per mile for passenger fares. Railroads whose gross earnings are less than $3,500 per mile per annum may charge higher fares. Schedules of passenger fares on file with the railroad commission of Wisconsin show that many railroads in this state charge three, four and even five cents per mile for passenger fares.

The following list shows the rates of fares charged by certain of these railroads:

Illinois Central	3 cents per mile
Duluth, South Shore & Atlantic	3 cents per mile
Green Bay & Western	3 cents per mile
Wisconsin & Michigan	3 cents per mile
Stanley, Merrill & Phillips	3 cents per mile
Wisconsin & Northern	3 cents per mile
La Crosse & Southeastern	3 cents per mile
Fairchild & Northeastern	4 cents per mile
Mineral Point & Northern	5 cents per mile
Hillsboro & Northeastern	5 cents per mile
Other small railroads	5 cents per mile

It is true that the railroads which operate a large proportion of the mileage in the state are affected directly or indirectly by the so-called two-cent-fare law, but the above

figures show that any statement that all passenger fares are on a two-cent per mile basis in Wisconsin is erroneous.

C. M. LARSON.
Engineer, Railroad Commission of Wisconsin.

FRICTION DRAFT GEAR IN SERVICE

CHICAGO, Ill.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

I have read with interest the article on friction draft gear by Professor Louis E. Endsley, which appeared in the *Railway Age Gazette* of November 16. The author states that there are three things that draft gears may do.

1—Produce slack in starting trains. 2—Control slack in the movement of trains. 3—Reduce the impact force in the switching of cars.

The author dwells on the third item extensively, considering principally the results shown by testing machines. This is very interesting and instructive, but I desire to present a few observations dealing with the first two items.

In determining what is the best draft gear in train service we should not be governed entirely by laboratory tests, as they do not represent service conditions. With the individual gear a high resistance with a low recoil shows the best results. In train service a high resistance and a high recoil are absolutely necessary to prevent slack action. The stored energy from the draft gear should be sufficient to release the gears throughout the train. Slack action caused by the non-release of the draft gear must be eliminated to avoid shocks in train service. In the report of a committee of the Air Brake Association appointed to investigate slack action in long passenger trains the following statement is made:

"From 1½ to 8 in. of slack between cars has been noted in handling trains, the average being about 2 in. per draft gear. It is evident from the investigation that draft gear generally is inadequate for present heavy passenger service. Draft gear failures occur universally in starting and stopping trains."

An investigation of freight trains should be made along similar lines. It is my opinion that friction draft gear with its increased travel and low recoil increases slack action because it has not sufficient stored energy to return to normal position after being closed by sudden jerks or thrusts or after creeping under the tractive force of the locomotive. After the gears have been in service for some time the parts wear and lose their resistance. To satisfy yourself of the fact go out in any yard when tonnage trains are pulling out and you will find 90 per cent of the draft gears stretched to the limit of their travel by locomotives with tractive efforts of less than 70,000 lb. If we were to increase the draft gear travel to 4 in. we would have more slack than ever before. The increased movement of 2 in. over the spring gear would add 8 in. between each two cars, half of which would be slack.

The conclusions which I have reached after numerous tests and observations of draft gears are as follows: No draft gear, spring or friction, has sufficient stored energy when closed to return to its normal position in a tonnage train, when the engine is working at its full capacity; any draft gear that remains closed from the tractive effort of an ordinary locomotive is useless as far as train operation is concerned. A 4-in. travel is no better than a 2-in. travel if the spring remains closed. A friction draft gear with a long travel and a low recoil does not have time to return to normal position before a reaction takes place. Such gears increase slack and shocks, as the distance between the closed position and the normal position of the gear in train service is lost motion or slack. Due to the factors of time and travel the reverse action is different in train service from that shown in the drop testing machine. In the testing machine the gear has but one action, namely, closing when force is applied, while in train service there is a double action. Any draft gear, spring or friction, should have at least 100,000 lb. stored energy when closed, in order to release half way under the strain of an engine with a tractive effort of 50,000 lb. This would reduce slack action.

I agree with the author that cars should not be thrown together in yard service at speed exceeding four miles an hour. Switching service is, however, a secondary issue, since it can be controlled. The operation of cars in road service must be made as nearly fool-proof as possible. Under present conditions it is not a question of having sufficient coupler travel to start trains, but it is a question of having an engineer who can start without shock or breaking the train in two, due to excessive travel. The whole matter resolves itself into two questions, namely, Shall we increase the travel and also the shock? or Shall we increase the recoil, thus reducing the slack that produces the shock? The present Master Car Builders' standards of coupler travel are sufficient and should not be changed or departed from.

H. C. PRIEBE.

WHY NOT REGULATE THE COST OF PRODUCTION

RIVERSIDE, Cal.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

Being very much concerned about the labor situation in general, and filled with a desire to give my views some publicity, I am writing you and while I am not anxious that you publish my letter, I would like to see some expression given covering the ideas, as I feel there is a public need of fairness in regulation.

While I understand from the press reports that the federal government is beginning to fix maximum prices on commodities, wheat and coal in particular, nothing appears to have been done towards regulating the maximum cost of production. Assuming that the maximum prices that may be asked for wheat and coal are based on the present cost of production, what is going to be the result when the farmer or the miner is obliged to increase the wages of the employees? How can these producers be expected to continue production at a loss? In our business, the maximum selling price of transportation is substantially fixed while the price of labor is not fixed and the result is that we are forced to lose money on many properties. The losses of a railroad are widely distributed and, the corporation being large, the burden can be borne for some time, but what of the farmer and the miner and perhaps others; will they not curtail service under such conditions and, as a result inflict hardship on the country at large?

Since the draft law has become operative whereby the young men of our country are forced into the service of the government at a maximum wage fixed by the government, and in view of the fact that industrial success is necessary in carrying on the war, it seems to me that the government could well provide by statute that the wages effective as of a given date in any line of industry should not be increased without governmental consent during the period of the war, or something to that effect. There is no reason, and I am thinking of the constitution of the United States, why one class of American citizens, of draft age, should have their work and wages fixed by the government, and on the other hand and, at the same time, allow other American citizens to stay at home and dictate what they shall get or even whether they shall work so long, particularly, as their work is in any way of interest to the public at large. In other words, it seems to me that in all fairness maximum pay in industrial lines must be fixed, or an army of industrial workers formed. Surely this government is big enough and strong enough at this time to protect the public interest by preventing extortionate wages being demanded.

W. J. BOHON,
General Manager, Riverside, Rialto & Pacific.

"Over-There." All Aboard for "Somewhere-Else in France." Copyright by Underwood & Underwood, N. Y.

Another Day With the Railwaymen in France

The Engineers Continue to Be Headliners in the Day's News. Eleven Suffer Serious Wounds at Cambrai

AS if not to be outdone by the railways at home in the way of getting feature headlines in the public press, the railwaymen abroad are doing their best to make feature news for the cables from overseas.

First Locomotive From Home

"It was welcomed with open arms" is the expression the New York Evening Sun's staff correspondent uses in a copyright despatch to tell of the arrival of the first American locomotive in France. Cabling on Monday from his station with the American Army in France, he says:

"Immense American hogback engines, the joy of the Yankee railroadman, are now drawing trains of ammunition, also supplies and wounded soldiers back to the French front.

"The railroad engineers who took over the French strategic railroad during September received their first locomotive from home recently. It was welcomed by them with open arms.

"It was a sort of personal victory for the locomotive. Cheering Americans lined the tracks along which the big machine had a kind of triumphant progress. One engineer, describing the scene, said:

" 'The greatest thing of all was that bell. I never paid much attention to engine bells at home, but this one sounded like music when that chu-chu came down the track!'

"French locomotives do not use bells, so the American machines must be shorn of that musical adornment, for at the French front the bell is the signal of a gas attack. If French soldiers heard that engine bell they would all don gas masks.

"Our engineers have been under fire again. German artillery is dropping shells all around the barracks of one detachment. No damage has been suffered.

"The Americans have been picking up the shell fragments for souvenirs. Engineers report that they are handling without a hitch more traffic than ever passed over these railroads before."

Belgium Gives Pershing 600 Locomotives

As a mark of its appreciation of what the United States has done for Belgium, says an Associated Press despatch, dated December 8, the Belgian Government has turned over to the American expeditionary force 600 locomotives, all that remains of the Belgian motive power. Gen. Pershing has been authorized to make such disposition of them as he deems advisable.

To a Belgian representative Gen. Pershing expressed the appreciation which, he said, he knew would be felt by the people of the United States, especially as the Belgian government's act would result in a large saving of cargo space on American ships.

Early in the war Belgium had in France about 1,700 locomotives. Since then the government has turned over for the use of the Allies about 1,100 of these. The remaining 600 the Belgian government had retained up to this time as a nucleus for the rehabilitation of the commerce of the prostrated nation after the war.

When it was found that the American expeditionary force could use a considerable supply of motive power on the lines from the base ports to the army zone the Belgian government made haste to offer the use of the locomotives, realizing that to ship as many from the United States as were needed would require a large amount of cargo space which might be used for other supplies.

Many of the locomotives will be speedily put into use and will be operated under the direction of the transportation department.

More About the Battle of Cambrai

How American railway engineers gallantly fought and died with their British comrades in arms on the front before Cambrai was told December 7 in a semi-official statement forwarded by the Associated Press.

"Two and one-half companies of railway engineers," the statement says, "with a strength of eight officers and 365

men, were encamped at Fins on November 30, having completed their work in the neighborhood. At 6:30 four officers and 280 men went to Gouzeaucourt, arriving at 7 and starting to work with Canadian engineers. The entire contingent was under a Canadian major and an American captain. The area was three miles in the rear of the line and none of the troops was armed.

"At 7:15 German barrage fire moved on Gouzeaucourt after heavy shelling to the east. At 7:30 a general retirement was ordered, and it was effected with some difficulty, due to the artillery, machine-gun and airplane fire.

"A number of losses were sustained at this time, and also among the men who, cut off by the German advance, had taken refuge in dugouts. Some of these men who had been cut off succeeded in joining British combatant units and fought with them during the day. Meantime there was active shelling against Fins, and the men there were ordered to scatter in the fields.

"As the men returned to camp they assembled under arms and instructions were asked from British headquarters. At 3 o'clock they were instructed to dig and hold the trenches, and the men moved up and started work shortly afterward.

"At 6 the trenches were finished sufficiently for the entire command and division headquarters directed a withdrawal to camp and that the men be held in readiness to man the trenches. Two small details were sent out to repair a distant break in the new track and to assist in transferring ammunition to another point.

"The list of casualties is relatively small and will be issued tomorrow. It is stated by British officers that the conduct of the regiment was most satisfactory. They praise its coolness under fire, and the ability of the men to work without interruption is regarded as most commendable.

"Engineer organizations in the American Army hereafter, it was recommended today, shall be armed and ready for battle on all occasions when they are anywhere near the fighting line. The recommendation, which is certain to be adopted, was made as a result of the predicament in which the engineers found themselves when they became involved in a German attack on the British front last week. At that time they were forced to take up guns abandoned by dead and wounded soldiers."

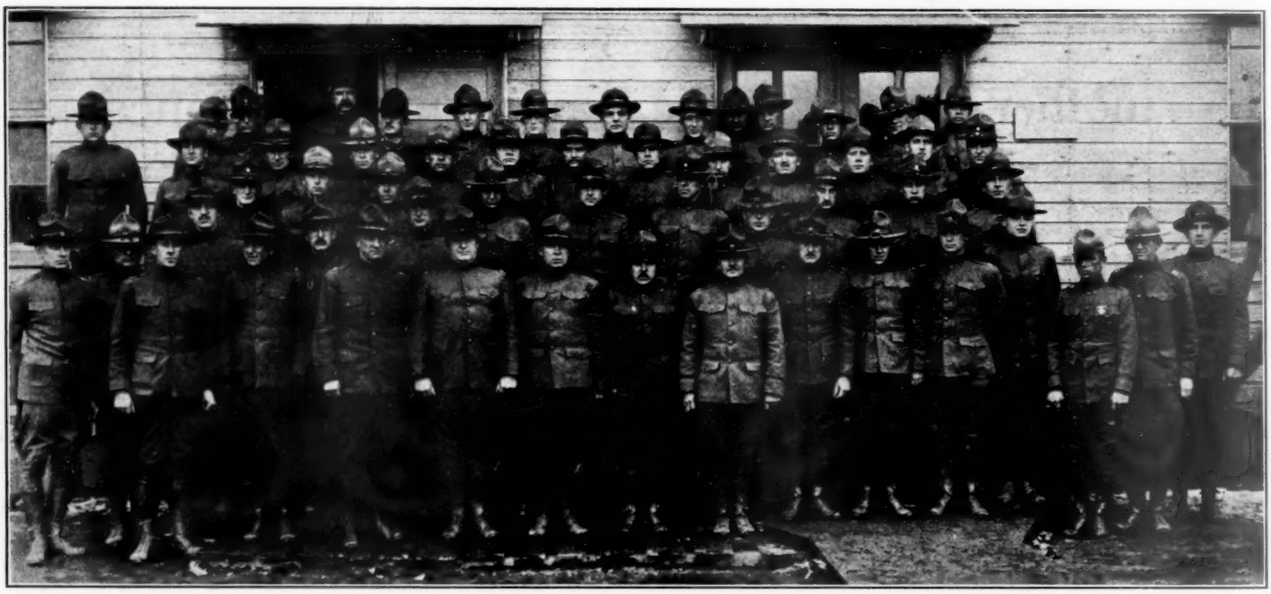
The Casualties

That the railway engineers suffered severely is shown by the list of casualties forwarded to the War Department from General Pershing. The list gives the names of 12 of the engineers severely wounded and two slightly wounded; including one second lieutenant, two sergeants, three corporals and eight privates. The second lieutenant mentioned was Allie L. Cone of Company D of the 11th Engineers, the regiment that was recruited in New York.

Association of 11th U. S. Engineers

About 800 relatives and friends attended the meeting of the Association of the 11th U. S. Engineers Sunday afternoon in the Engineering Societies building, New York, President Frederick L. Cranford, a prominent New York public service contractor, presiding. The 11th Engineers is the regiment that was in the midst of the fighting around Cambrai and was mainly recruited in New York. The association consists of the relatives and friends of the 11th Engineers and was formed soon after the regiment sailed for France, with the purpose of acting as a clearing house for information concerning the regiment, providing for the physical comfort and well being of the regiment as far as possible, and giving help and comfort to dependents.

The association reported the sending of Christmas boxes containing tobacco, bouillon cubes, candy and concentrated coffee to all the 1,300 men. The boxes were paid for with voluntary contributions made to the treasurer, R. L. Cox. At the meeting $700 more was added to the fund.



Officers of the Thirty-Fifth Engineers (Shop Regiment), Now at Camp Grant, Rockford, Ill.

Bottom row: Left to Right, Capt. Chas. H. Fueller; Lieut. Walter Budwell, Lieut. Wm. F. Philbrick, Lieut.-Col. G. H. Vincett, Col. A. E. Waldron, Major J. F. Surridge, Lieut. R. E. Trippe, Capt. Jos. W. Moore, Lieut. Wittet (Medical Detachment), Lieut. McDaniels (M.D.), Capt. W. G. Vincett, Sec. Lieut. R. F. Getz, Sec. Lieut. Leo. J. Stein, Capt. W.Woodard, Lieut. W. S. Mack.

Second row: Lieut. Hill (M.D.), Lieut. P. E. Carter, Lieut. Miller (M.D.), Capt. H. C. Huffer, Jr., Regimental Adjt., Lieut. L. T. M. Ralston.

Third row: Sec. Lieut. R. G Stafford, Lieut. David Holderman, Lieut. A. W. Holbrook, Lieut. M. V. Holmes, Lieut. O. S. Dickson, Capt. W. R. Pearson, Sec. Lieut. N. C. Raabe, Sec. Lieut. B. G. Hegel, Lieut. F. W. Hausmann.

Fourth row: Lieut. F. C. McFarland, Sec. Lieut. F. W. Ford, Jr., Lieut. A. F. Ainslie, Lieut. Loring (M.D.), Lieut. R. M. Smith, Capt. John G. Hollman, Lieut. H. L. Dyke, Lieut. Wm. A. Hauth, Sec. Lieut. R. C. Montgomery, Lieut. Smith (M.D.), Lieut. John F. Weiss, Lieut. John S. Wetherill, Lieut. Lee, Chaplain.

Last row: Capt. F. N. Hatch, Sec. Lieut. E. B. Wilkinson, Capt. Wm. E. Abbott, Capt. E. B. Hocker, Lieut. Morris, Sec. Lieut. R. J. Offuit, Capt. W. C. Lindner, Capt. H. P. Wilson, Jr., Lieut. H. M. Fetterolf, Sec. Lieut. H. Darlington, Lieut. K. J. Zinck, Lieut. J. L. Blair, Lieut. W. S. Mussenden.

The most interesting feature of the meeting was the reading of about 20 letters from members of the regiment and the contribution of late bits of news from the front. Anxiety as to the casualties in the recent engagement with the Germans, for which members of the regiment were praised by a British General, made a background of intense feeling.

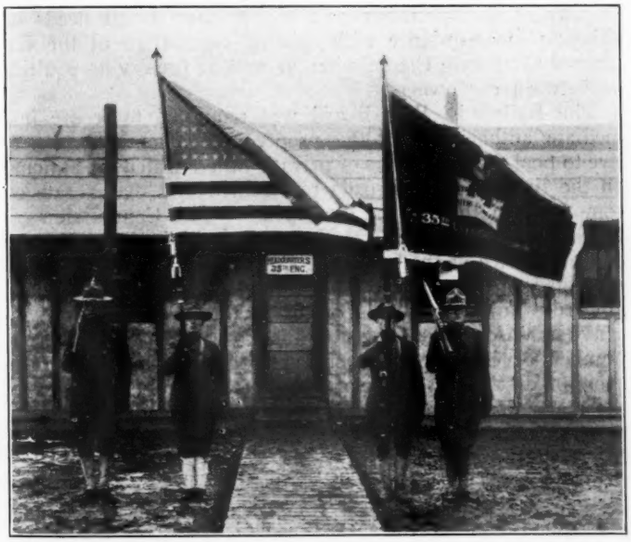
Plans were made to print and distribute among the members of the association a composite letter, containing all items of general interest received in letters from the front. Members were urged to forward their letters or excerpts from them promptly to the committee.

Engineer Captain Confirms Atrocities

One of the most striking letters read at the meeting was from a captain of the regiment:

"I never before believed the stories we got in America of the boche outrages. I have to believe them now, and they are many times worse than the stories that I heard at home," said the letter.

"Canadian and Scottish battalions take no prisoners," the captain said. "They give and ask no quarter. The reason is that the boches have several times crucified Canadian and Scottish prisoners and held them above the trenches in view of the battalion. In one such case a Canadian battalion went right over the top to the boche trenches without orders. Very few of them returned.



The Colors of the 35th Engineers, Now in Camp at Rockford, Ill., Were the Gift of American Car Construction Companies

"The thing that makes our blood boil is the absolutely unnecessary and wanton destruction wrought by the retiring Hun. His usual wonderful, systematic methods have been applied to this destruction. Whole towns that have hardly been touched by shell fire have been destroyed by dynamiting.

"So much of it has absolutely no military value. Isolated homes, beautiful chateaux, garden walls, little summer houses are all blown up. Shade trees, flower trees are cut down or the bark cut so the trees will die. Cemeteries have been ransacked.

"I have seen three cemeteries that are awful sights, one body dragged half out of the casket, caskets broken open and the bones from several dumped into one. Evidently the boche was looking for jewelry, or was simply malicious or both.

"Those things could not be done without the knowledge and permission of the officers; and the thing is so complete that it looks as though it was all a part of an official systematic programme. I never did believe the stories we got in America of the boche outrages. I have to believe them now; and they are many times worse than the stories we heard at home."

Then follows a story of the crucifixion of prisoners and the violation of a convent.

"I cannot understand what the mental operations or processes of the Hun can be," the letter ends. "It must be the wrathful spite of a disappointed, degenerate mind."

A letter from a younger engineer, written in a lighter vein, speaks of the employment of women. "Everything here seems to be run by the women. The trolley car I rode on had women for motorman and conductor. The former was very robust and quite pretty, with considerable rouge on her face. I rode to the end of the line, and when she came through the car she chucked me under the chin and said I was 'a fine American.' It is a pretty nice country where the motorman loves you, isn't it?"

That two American engineers acting as stretcher bearers were shot in cold blood by German soldiers in the recent attack on the British lines at Cambrai is the report received at American army headquarters in France by a New York surgeon attached to the force of American railway engineers who fought at Cambrai, says the New York Sun's staff correspondent in a copyrighted despatch to his paper dated Tuesday.

"These two men," the despatch continues, "were unarmed, like the rest of their comrades, when the attack came, and for some time they hid in a dugout. When they came out they found the trenches deserted. They did not know the Germans had passed and started toward the rear. On their way they found a wounded British officer on the ground and making a stretcher out of a blanket started to carry him into a ruined village which they supposed was still occupied by the British.

"Suddenly some Germans appeared and despite the fact that the Americans had no weapons and were engaged in a work of mercy they shot and killed both of the stretcher bearers without giving them a chance to resist. They then dragged the wounded officer to their headquarters, where he was questioned in an endeavor to gain information as to the the British strength.

"The British officer refused absolutely to answer questions, and so was dragged out and left on the ground again, though weak from loss of blood. Soon afterward there was a furious counter attack by a handful of men from the Royal Irish Rifles, who recaptured the ruined village and saved the officer.

"Another incident in the same battle drove home the truth of the British stories in regard to the German methods of fighting. This concerned an engineer sergeant, a big Irishman from New York, whose wit and good nature had been the life of the company. The Irish sergeant was badly wounded in the Cambrai fighting and was being taken to the rear in an ambulance when a German Taube, flying low, poured the contents of a machine gun into the ambulance. At the time the vehicle was plainly marked by the Red Cross and must have been recognized by the German airmen. One of the bullets slashed the sergeant's face.

"As more details become known as to how the Americans acted in the Cambrai surprise attack the greater becomes the pride of their comrades in their achievements. One engineer, unable to get hold of a rifle, went at the Germans hand to hand, armed only with his spade. Swinging this implement with which just before then he had been digging he felled two Germans before he himself was dropped.

"He was badly wounded in the head, but insisted on walking back to the dressing station. Asked by an officer how he felt, the wounded engineer replied: 'Oh, I'm all right except those damned shoes the quartermaster served out to me are so tight I can hardly walk.'"

EASTERN OPERATING COMMITTEE MAKES PROGRESS

Reports to the Railroads' War Board indicate that the General Operating Committee of the Eastern Railroads has already been able to effect results in relieving the congestion on the eastern lines which has been especially noticeable in the Pittsburgh district. On December 4 the committee adopted a resolution stating that whereas the situation through the Pittsburgh gateway is easing up on certain routes, the chairmen of the sub-committees at Chicago and St. Louis were authorized to issue permits for movement through the Pittsburgh gateway of such cars as the operating officers of the interested lines will approve, sending to the committee at Pittsburgh copies of such permits.

The first action of the committee, which established its office at Pittsburgh on November 28, was outlined in last week's issue. After making a preliminary study of the situation and issuing a few orders deemed most essential to effect an immediate improvement, the committee appointed sub-committees at the principal cities in its territory to report to the General Operating Committee. The instructions of the sub-committees are:

(a) To secure information covering the exact transportation situation throughout their respective territories; to agree upon and put into effect, measures for immediate relief of congested points, keeping the General Operating Committee constantly advised, and to pay particular attention to government freight, fuel, foodstuffs, and raw materials for blast furnaces.

(b) To agree upon and make recommendations to the General Operating Committee when the situation is of such magnitude that it cannot be reached by local treatment.

Various members of the General Operating Committee were assigned to the sub-committees to have special supervision over their work. The location of the various sub-committees and their chairmen are as follows:

Boston: C. L. Bardo, assistant to president, New York, New Haven & Hartford; New York: W. J. Fripp, general Manager, New York Central; Philadelphia: R. L. O'Donnel, assistant general manager, Pennsylvania Railroad; Norfolk, Va.: A. C. Needles, general manager, Norfolk & Western; Cumberland, Md.: S. Ennes, general manager, Western Maryland; Pittsburgh: D. F. Crawford, general manager, Pennsylvania Lines West of Pittsburgh; Buffalo, N. Y.: D. W. Dinan, general superintendent, New York Central; Cleveland, O.: A. S. Ingalls, general manager, Lake Erie & Pittsburgh; Detroit, Mich.: E. D. Bronner, vice-president and general manager, Michigan Central; Chicago, Ill.: A. M. Schoyer, vice-president, Pennsylvania Lines West of Pittsburgh; Columbus, O.: I. W. Geer, general superintendent, Pennsylvania Lines, Southwest System; Cincinnati, O.: W. J. Jenks, general superintendent, Norfolk & Western; Indianapolis, Ind.: J. W. Coneys, superintendent, Pennsylvania Lines, Southwest System; St. Louis, Mo.: T. B. Hamilton, vice-president, Pennsylvania Lines, St. Louis System.

Sub-committee chairmen were also instructed to make a report by wire at 12 o'clock noon daily to the General Operating Committee of the traffic conditions in their assigned territory and that this be made an imperative order of business. The chairman of the Pittsburgh sub-committee was instructed to meet with the General Operating Committee at the same time and report especially upon Pittsburgh terminal territory conditions.

One of the first subjects taken up by the General Operating Committee was consideration of the question of an open top car pool for the purpose of reducing switching and empty car mileage, with especial regard to certain situations where special types of equipment are essential to coke supply for blast furnaces. The committee adopted a resolution favoring an open top coal car pool on lines in Official Classification territory with the Norfolk & Western, Chesapeake & Ohio and Virginian railways included, and that flat, low-side, flat bottom gondola and coke cars should be excluded. It was also resolved that in determining the proportion which each line has contributed to the pool and which is the basis upon which distribution of available cars will be made, the tonnage capacity of the cars shall be considered and that cars of private ownership be included in order to realize the full benefit of the coal car pool.

On December 5, the coal car pool question was further considered and a resolution adopted stating that about 80 per cent of the coal mined in the United States originates on the roads represented by the committee and that an enormous amount of shifting can be eliminated and transportation efficiency increased by pooling coal-carrying cars and using them interchangeably. The committee, therefore, created, effective at once, a pool of all coal-carrying cars upon the roads represented by it, with F. G. Minnick, superintendent of freight transportation of the Pittsburgh & Lake Erie, as manager, with office at Pittsburgh. He was instructed to prepare and submit rules for the operation of such a pool which will insure distribution of pooled equipment in accordance with orders of the government as to priority of transportation and supply the current needs of shippers in accordance with existing regulations of the Interstate Commerce Commission, as well as preserving equities as between car owners.

The Railroads' War Board was requested to secure immediate authority from the proper government representative to pool those coal cars of private owners which are at home on the lines of the railroads represented and that a rate of compensation therefor be established. The Commission on Car Service and E. H. De Groot, Jr., chief of the Bureau of Car Service of the Interstate Commerce Commission, were requested to assist Mr. Minnick in the preparation of suitable rules and regulations to govern the pool.

When information reached the committee that a large number of loaded cars were detained at junction points short of destination awaiting revenue way bills, it requested the roads to move cars being held and make such arrangements as may be necessary to comply thereafter with Order No. 5 of the Commission on Car Service.

On December 5, in order to relieve terminal railroad congestion, as well as to release freight cars for the longer haul east, the interested lines were ordered to place embargoes within the ports of Boston, New York, Philadelphia, Baltimore and Newport News, effective on December 10 against all less than carload intracity freight and against any intracity reconsigning privilege after an incoming freight car has been placed in accordance with original billing instructions, and effective on December 24 against all carload intracity freight.

The committee has also urged all lines to act promptly on the suggestion in bulletin 42 of the Railroads' War Board toward the general adoption of interline billing for the purpose of decreasing detention to traffic and equipment. The Master Car Builders' Association has been called upon to formulate a modification of its present rules that will enable car repairs to be made immediately without sending for material from car owners, so far as is consistent with safety, and to take immediate action through its appropriate committee to make effective this modification as affecting the interchange of equipment in these two territories.

TRAFFIC AT SAULT STE. MARIE CANAL IN OCTOBER.—The vessels which passed through the canals at Sault Ste. Marie, Michigan and Ontario, during the month of October numbered 3,147. They carried eastbound freight amounting to 9,522,244 tons and westbound, 3,123,822 tons, making the total freight carried 12,646,066 tons.

Government Operation of Railways Imminent

President Wilson Expected to Announce Shortly Plan for Taking Over Railroads for Period of the War

GOVERNMENT control of railroad operations for the duration of the war, probably under the direction of a government railroad administrator with a guaranty of earnings, is understood to be the policy decided upon by President Wilson as a result of his consideration of the recommendation made by the Interstate Commerce Commission in its special report to Congress last week. The President already has the authority of law to take possession of the railroads as a war measure but he is expected to go before Congress shortly with a special message recommending more specific legislation as to the terms of the plan.

Railroad executives from all sections of the country are in Washington conferring with the Railroads' War Board on the expected developments, and the members of the War Board discussed the proposal at a conference with the President on Wednesday afternoon. The question whether the railroads should continue to be controlled by their own managements or whether they should be taken over and operated by the government has been carefully considered by the President for several days but it has come to be regarded as a foregone conclusion that the latter plan will be adopted and that a government railroad administrator will be appointed, the security holders of the roads being guaranteed an adequate return, based on the pre-war earnings, in accordance with some plan patterned after that adopted in Great Britain.

In a last effort to show that government operation would be unnecessary the Railroads' War Board, at a conference on Monday with Chairman Newlands of the Senate Committee on Interstate Commerce, laid before him a plan by which they declared they would be able to furnish all the transportation which the existing plant can produce under any form of management. It is understood, however, that the President, while opposed to the idea of government ownership, feels that government authority is essential to the complete unification of the country's transportation system which the Interstate Commerce Commission declared "indispensable to their fullest utilization for the national defense and welfare."

The railroads pointed out that their principal difficulty is an operating problem and that with active government cooperation, an increase in rates for the eastern lines, and some assistance from the government to enable them to secure capital on their own credit, the unification of the railways now being carried out by the Railroads' War Board could be further perfected sufficiently to enable them to cope with the situation.

This plan, which was the result of a general conference of railroad executives in New York on Sunday, was submitted to Senator Newlands in the form of a letter from Fairfax Harrison which the Senator later placed before the President at a conference in which the alternative recommendations of the Interstate Commerce Commission were fully discussed. The Senator also conferred with the legislative committee of the Interstate Commerce Commission. After his conference with the President it was learned that the President intended to address Congress very shortly and it was understood he had imparted to Senator Newlands his intention of taking over the operation of the railroads.

Mr. Harrison said in the letter:

Proposal of the Railroads' War Board

"The American railroad system has not broken down. On the contrary, it has, in recent months, handled 50 per cent more business than in 1915 without material enlargement of plant.

"Some misconception seems to exist as to the immediate requirements of the railroads in their present situation. Their operating troubles are a volume of traffic greater than the capacity of the plant in certain limited territories, aggravated by excessive use of preference orders, and their now serious malady of 'dilution' of labor, which is general throughout the country and common to all industry. Nevertheless, the railroads under present management are prepared to furnish all the transportation which the existing plant can produce under any form of management.

What the Railroads Do Not Ask

"1. They do not ask one billion dollars from the government or anybody else at the moment. They could not immediately invest it in plant and equipment if they had it, because of the difficulty in getting materials and labor. That figure represents, in round figures, what ought to be spent in every year for several years to bring the American railroad plant up to capacity to handle efficiently the growing traffic. About $600,000,000 per annum on the average has been spent for a number of years for road and equipment, which, at present prices, would be equivalent to about one billion dollars for road and equipment.

"2. They do not at this time ask for repeal of the anti-trust and anti-pooling laws as relating to them, for they do not consider such relief immediately necessary to increase unified operations.

"The co-operative use of facilities will be continued in such way as to obtain maximum efficiency.

"The present system of voluntary unification is adequate for this. No interest has declined, or will decline, for selfish or other reasons to respond to the requirements of the present co-operative organization.

What the Railroads Do Ask

"3. The immediate appointment of a traffic officer to represent all important government departments in transportation matters, with whom the railroads can deal, to secure active government co-operation, the prompt and orderly transportation of government traffic, and avoid the excessive use of preference orders, which congest traffic instead of facilitating it.

"4. Most of the railroads need more locomotives immediately and enough new cars to replace those worn out. There are approximately 3,800 locomotives and 33,000 cars still on order undelivered for American railroads. The railroads expect to provide the capital. Priority orders are essential for prompt delivery of such equipment.

"5. Approximately 2,000 locomotives and 150,000 cars, in addition to those now on order, are necessary for early construction to meet the requirements of next year. This is no more than the railroads usually require every year, and at present prices represent a cost of approximately $500,000,000. While a number of the railroads are able to purchase their quotas of such equipment without aid, it is apparent that because the United States has necessarily occupied the investment market for war loans, as evidenced by the recent request of the Secretary of the Treasury that no new private financing shall be undertaken without conference with him, the railroads cannot next year provide through their usual channels for the capital requirements for the acquisition of equipment and other possible additions to plant. They invoke, therefore, the co-operation and aid of the government through the Treasury Department and the Federal Reserve Board to secure for them, on their own individual credit, the new capital found by the government to be necessary not only

for enlargement of plant but for renewing maturing obligations.

"6. Immediate increases in rates as defined by the Interstate Commerce Commission's special report to meet increasing operating expenses and strengthen credit are necessary in eastern territory, and may become necessary in other territories.

"7. Railroad men drafted to be enrolled and assigned to railroad service until actually needed for military service."

The President has been giving the railroad question a large share of his attention during the past week and while the best information as to his intentions for a time seemed to indicate that his own inclination was against adding direct responsibility for railroad operation to the long list of important tasks which the government is now struggling with, it came to be generally believed by Saturday, even among railway executives in Washington, that he had about come to the conclusion that government operation presents the only feasible solution. It is also understood that one of the most important factors which led to this decision was the assurance that Congress would never stand for a loan to the railroads in an amount which would be sufficient to have any appreciable effect. Numerous members of Congress, with a great show of liberality, have talked about lending the railroads $100,000,000, but it was apparent that most of them were rather staggered when they were informed of the railroads' estimate that $1,000,000,000 would be needed. Whether Congress is in favor of government operation of the roads is perhaps a doubtful question but there is no doubt that it would accept a recommendation of the President on this point and a majority of the members of the Cabinet are understood to have advised that the roads be taken over.

President Now Has Authority

The authority of the President to take over the operation of the roads, to which the Interstate Commerce Commission referred in its report, is conferred by a brief clause which was inserted in the army appropriation bill approved August 29, 1916, without attracting general attention because the country was then engrossed with the possibility of a nation wide railroad strike. The clause merely provides that "The President in time of war is empowered, through the Secretary of War, to take possession and assume control of any system or systems of transportation, or any part thereof, and to utilize the same, to the exclusion as far as may be necessary of all other traffic thereon, for the transfer or transportation of troops, war material and equipment, or for such other purposes connected with the emergency as may be needful or desirable."

This is merely an emergency provision, passed at a time when Congress was taking a few precautionary measures but not seriously considering the possibility of a war. It makes no provision for compensation either of railroad officers and employees or of the security holders, such as is contemplated in the commission's alternative recommendation. While under its authority the President could seize the railroads with a stroke of the pen, it is apparent that he would consider more legislation necessary because, immediately after war was declared, Chairman Adamson of the House Committee, following a conference with the President, introduced a bill in Congress to authorize the President in case of actual or threatened war or any emergency, to take possession in whole or in part of the railroads and prescribe rules and regulations for their operation, drafting into the military service of the United States any or all officers, agents and employees, provided that the operation of the lines should be conducted under the control and supervision of such officers as the President might designate and that whenever, in his opinion, the public safety no longer requires their possession by the United States they should be restored to the owners and the damages suffered or the compensation to which the companies might be entitled should be determined by the Interstate Commerce Commission. During the time that the United States is in possession, the bill provided: "the officers, agents or employees shall receive for their service such compensation as they were theretofore accustomed to receive for similar services." The bill also contained a provision authorizing the President without taking possession of any of the lines to issue orders either direct or through such persons as he might designate for the purpose, to any officers of the lines or to operate any or all of the lines temporarily.

The President also referred to the probable necessity for additional railroad legislation, "in order to effect the most efficient co-ordination and operation of the railway and other transportation systems," in his message to Congress last Tuesday. Under the present law he could act first and then ask Congress to pass any law necessary to round out the plan.

The commission's report aroused intense interest among members of Congress. Discussion of the idea of a government loan to the railroads had already been started. Senator Newlands announced his advocacy of a large loan. Representative Adamson said he was opposed to the proposed suspension of the pooling law and that he was in favor of loaning money only to the weaker roads. The President held a long conference on the subject on December 6 with Chairman Hall and Commissioners Clark and Meyer of the Interstate Commerce Commission, after which he conferred with Secretary of the Treasury McAdoo.

On the same day the members of the Railroads' War Board and Mr. Willard held a conference with Senator Newlands at which they told him that if any plan of a government loan to the railroads were to be really effective in helping the situation the amount should not be less than $1,000,000,000. They promised to submit to Senator Newlands a more detailed estimate on Monday before his conference with the President. Contrary to the impression created by many newspaper accounts, the railroads did not ask that the government make them a loan, but emphasized the point that if there is a loan it must be made large enough to be effective, as they feared the psychological effect if they should accept a small loan, such as $100,000,000, which would not produce perceptible results.

The railroad situation was again discussed at the Cabinet meeting on Friday, after which it was generally reported that, while the President still held an open mind, he had been rather strongly advised by the Cabinet members to exercise his authority to commandeer the roads.

Railroads Prepared to Furnish All Necessary Transportation

The attitude of the railroads toward the Interstate Commerce Commission's report was discussed at a meeting which the Railroad's War Board held on Friday afternoon with the Washington correspondents, for the purpose of giving them an opportunity to ask any questions regarding the railroad situation. All of the members were in attendance and some 30 or 40 newspaper men, who asked questions freely and were answered promptly and frankly by Chairman Harrison and the other members. Mr. Harrison also read a general statement of the railroads' position as follows:

"The American railroads under present management are prepared to furnish all the transportation which the existing plant can produce under any form of management.

"They have already made common use of box cars and of many facilities for more intensive operation. The recent action combining facilities of eastern roads and providing for common use of coal cars in that territory is already reducing congestion. The American railroads under the direction of the Railroads' War Board are prepared without reservation to make common use of facilities, power and equipment to accomplish the highest measure of success in the transportation effort of the country.

"They point out, however, that in order to secure complete results, certain action not within their power is essential, viz.:

"(1) Co-operation of important military and industrial agencies of the government to avoid unnecessary congestion upon important lines serving territory of intense industrial activity and occasioned chiefly by extravagant use of preference orders for shipment.

"(2) Reasonable additions to power and cars to replace equipment wearing out and to provide for recent increase in traffic.

"Co-operation with government departments and agencies is already well organized and promises success. Opportunities through priority orders to secure completion and delivery of engines and cars now on order will furnish much immediate relief under the second head.

"The point of the whole matter is that the American railroads have, since our entrance into the war, been operated with the highest efficiency, and have until now transported without substantial complaint the greatest volume of traffic in the history of the country. Responsibility for recent congestions, which it must be remembered are only in a limited but highly important territory, cannot be charged to lack of efficiency or earnest effort to prevent them. From the beginning, the authority of the Railroads' War Board has not been questioned by any railroad, nor has there been any hesitation or avoidable delay in obeying its orders and directions."

Urge Appointment of Government Traffic Manager

Mr. Harrison pointed out that the General Operating Committee of the eastern railroads had already been able to effect an improvement by diverting freight from the most congested lines. He also said the roads had been advised that the government was about ready to act on the repeated recommendations of the War Board that the government should appoint a traffic executive to decide what shipments were most urgently required and thus avoid congesting the railroads as they have been congested by a multiplicity of preference orders, issued by numerous government authorities and their subordinates, each intent on having shipments in which he was interested handled as rush orders.

The Railroads' War Board has been trying to emphasize in every possible way for the past two or three weeks the necessity for some such action on the part of the government. When the arrangement was made during the summer for the plan under which the various government departments could have their shipments expedited by the use of the blue preference waybill envelopes, according to the plan outlined in the War Board's Bulletin No. 22, it was assumed that they would be used with some discretion. Instructions were issued to the railroads, in case of doubt as to the propriety of the use of the waybill envelope, to accomplish the movement as ordered and then take the matter up for investigation, "inasmuch as these forms are only furnished by responsible officers of the Army, Navy and the Shipping Board, who will undertake to prevent abuse thereof." But it has turned out that the preference orders have been used indiscriminately for all kinds of freight in which the government or the Allies were interested, either without any reference to whether one class of freight was more important than another, or because the man using the order considered that his particular business was more important than any other, with the result that the bulk of the freight moving on some of the eastern roads has been under rush orders.

One of the most conspicuous examples was a "rush" shipment of anchors to a ship yard to be used on ships to be built when the yard is built, using cars and track room in the congested district which are needed for something more important now. The War Board has urged upon every representative of a government department that it has conferred with the necessity of some co-ordinating authority in the government to decide what requirements are most important and to speak for the government to the roads in the same way that the traffic manager of a steel company does. The matter was finally put up to the Secretary of War, with an urgent request for the immediate appointment of an executive to determine the necessary routing and priority of shipments from the standpoint of all departments of the government interested in transportation, and when the members of the War Board were advised that such a plan would be adopted they considered that an important step had been taken toward relieving congestion. In fact the agitation they had conducted against the indiscriminate use of preference orders has already shown an effect.

Need for Equipment

As to the need for additional equipment, Mr. Harrison said that merely a large number of new cars, without additional power and terminal facilities, would hardly improve the situation; that the roads have nearly enough cars now but ought to have enough new ones for replacements. Out of approximately 100,000 on order nearly 40,000 are still undelivered and 3,364 locomotives on order have not been delivered because the orders of the War Department for the military railroads in France, and of the Russian and French governments, have been given priority. Of 3,140 locomotives under order on June 30, exclusive of those being built in railway shops 1,049 have been delivered. Mr. Harrison said the roads were not criticising this policy of the government but thought the time had almost arrived when the needs of the American roads should be given greater consideration. Even if the government should be able to provide for increased capital for the roads, the eastern lines at least would still need the increase in freight rates they have asked to meet the higher level of operating expenses, Mr. Harrison said in reply to a question; but, because the government has practically monopolized the investment market it is impossible for the railroads to secure new capital in the usual way.

Asked why the plan of pooling the facilities of the eastern lines had not been adopted sooner, Mr. Harrison said that the necessity for it had not appeared until very recently. The principal congestion, he said, was on the Pennsylvania and Baltimore & Ohio and the primary object of the Pittsburgh committee is to relieve the congestion in the Pittsburgh district by diverting traffic to less congested lines. On the Pittsburgh division of the Pennsylvania 85 per cent of the freight recently has been moving under government preference orders. Efforts are also being made to route as much traffic as possible via Gulf and South Atlantic ports. While it was not stated at the meeting, it was learned from other sources that the Pittsburgh committee had already diverted 20,000 carloads of freight from the Pennsylvania to other lines and that 100 locomotives have been ordered from the western lines to the eastern lines, 50 to be delivered through the Chicago gateway and 50 through St. Louis.

Mr. Harrison said that the roads had by no means reached the limit of their possibilities and mentioned the possibility of increasing the movement of essential traffic by reducing passenger service and non-essential freight traffic. Mr. Kruttschnitt also called attention to the fact that in England when heavy troop movements were in progress both passenger and ordinary freight traffic had been suspended, whereas in this country the roads have thus far endeavored to handle both military and commercial traffic at the same time. In reply to questions, Mr. Harrison expressed the opinion that government operation of the railroads would prove less efficient than operation by the roads themselves because the railroad men were doing their best under present conditions and straining every nerve to produce the best results, while if they were told they had failed and asked to work under a government boss they could not work with the same spirit they now possess. He added that the authority of the government was not necessary because the authority of the War Board has

never been questioned by any railroad. The security holders, he said, might be better off under a plan by which the government would guarantee the earnings.

He said the roads had not yet given any detailed consideration to extending the pool of facilities to a pool of traffic or earnings which would run counter to the anti-pooling or anti-trust laws, but had thus far only attempted to handle the operating problem involved, postponing the question of the effect on earnings.

RAILWAY MAIL SERVICE

The reorganization of the Railway Mail Service and the adjustment of rates on the "space" basis is now practically accomplished after a thorough investigation by the department as to unreasonable and uneconomic methods, says the Postmaster General in his annual report to Congress, and although it has not been in operation sufficient time to work at its best, it is already bringing marked improvement to the service notwithstanding the irregularity of train movements, due to the heavy demands on the railroads because of war conditions.

On June 30, 1917, the length of lines on which railway post-office service was in operation was 231,501.39 miles, with annual miles of service of 308,018,777, and the length of lines on which closed pouch service was in operation was 71,268.32 miles, and annual miles of service of 281,499,859.

To date 1,824 railroad mail routes have been stated on the space basis of payment at the maximum rates stipulated in the act, such restatements being effective on November 1, 1916. This restatement embraced practically all routes having full railway post-office and apartment-car service, with storage and closed-pouch service incident thereto. The remainder of the routes, 1,157, were continued on the weight basis.

Although the rate of compensation on the space basis is higher than on the weight basis, the report says, the space basis of pay lends itself to such rational adjustment to the needs of the service that by the close of the fiscal year it was possible to eliminate duplication and other unnecessary transportation to the extent of approximately $7,000,000 per annum. Through economy in space the department was enabled to care for a large quantity of "blue-tag" mail, formerly sent by freight, and to handle postal supplies, which made a saving of $500,000 in freight charges.

The cost of the entire railroad transportation service under the weight basis was at the annual rate of $62,242,000. The cost of the same service under the space basis was at the annual rate of $65,492,000, an increase of $3,250,000 over the weight rate. Under the space basis of pay, however, it was possible to increase or decrease the amount of transportation to be purchased to the actual needs of the service, with the result that at the close of June 30, 1917, the regular authorized service was at the annual rate of $58,518,478.

Thus the operation of the space basis is resulting, the report says, in the direct saving of millions of dollars to the government by reducing the car-mile service required of the railroads, and has released to the roads a large amount of car equipment and car space on trains.

The financial statement and reports upon operations of various branches of the service in detail discloses the introduction of economic methods, labor-saving devices, an improvement in efficiency through a strict adherence to the merit system, and a saving of expenses in the transportation and method of handling the mail. The statistical statements show an extension of the service—city, suburban, and rural.

NAMES OF BATTLES FOR C. P. R. STATIONS.—The Canadian Pacific has taken the step of renaming certain stations with the view to commemorate the glorious fields in which Canadian troops won renown. A beginning has been made in this direction. Milleta, on the Sherbrooke Division, has been changed to "Vimy," while the town of Enterprise, located on the Belleville Subdivision of the Ontario District, is to be called "Lens." All the fields in which the Canadians have won or shall win laurels will be commemorated in name by the C. P. R. in the christening of stations.

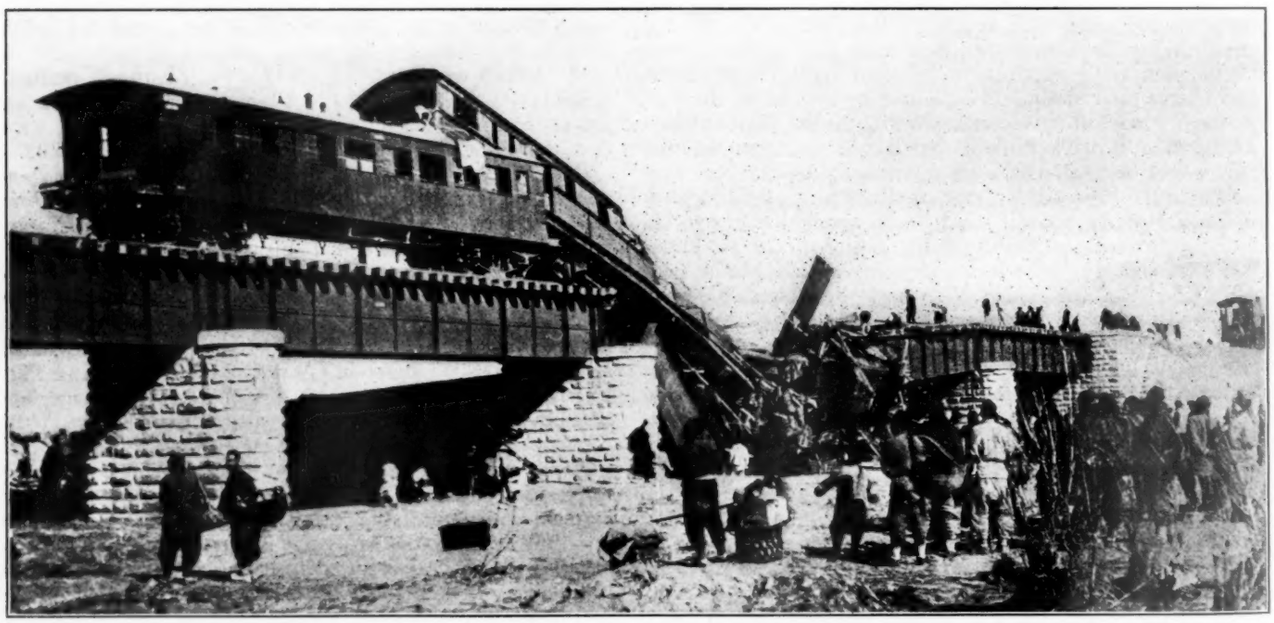


Photo from Underwood & Underwood, N. Y.

Siberian Railroad Bridge Blown Up Before the W. B. Thompson Red Cross Commission Train

Federal Locomotive Inspector's Report

Increase in Supervision and Inspection Believed to Be Necessary to Reduce the Number of Defects

THE sixth annual report of the chief inspector of locomotive boilers to the Interstate Commerce Commission has recently been made public and the following is an abstract of it:

The tables given below show in concrete form the number of locomotives inspected, the number and percentage found defective, and the number ordered out of service on account of not meeting the requirements of the law.

They also show the total number of accidents due to failure from any cause of locomotives or tenders and all parts and appurtenances thereof, and the number of persons killed or injured thereby.

The amendment to the locomotive boiler inspection law did not become effective until September 4, 1915; therefore, the record for 1916 included accidents and casualties investigated under the amended law for 9 months and 26 days only.

LOCOMOTIVES INSPECTED, NUMBER FOUND DEFECTIVE AND NUMBER ORDERED OUT OF SERVICE

	1917	1916
Number of locomotives inspected	47,542	52,650
Number found defective	25,909	24,685
Percentage found defective	54.5	47
Number ordered out of service	3,294	1,943

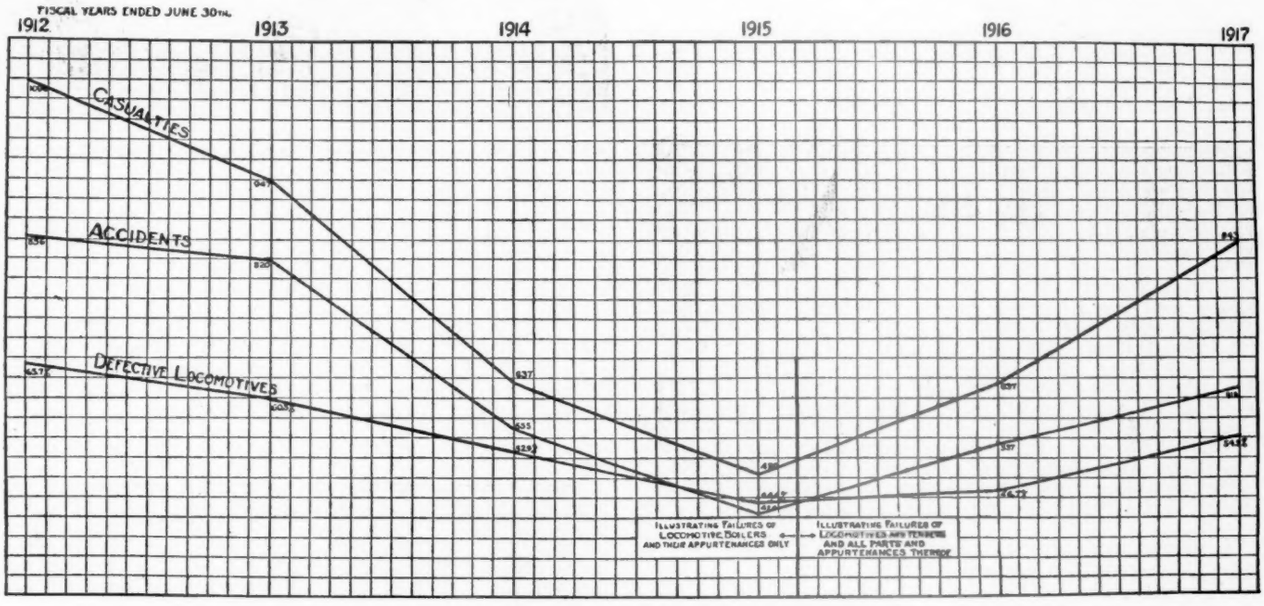
NUMBER OF ACCIDENTS, NUMBER KILLED AND NUMBER INJURED

	1917	1916
Number of accidents	616	537
Number killed	62	38
Number injured	721	599

The following table shows the total number of persons killed and injured by failure of locomotives or tenders, or any part or appurtenance thereof, during the year ended June 30, 1917, classified according to occupations:

	Year ended June 30—			
	1917		1916	
Members of train crews:	Killed.	Injured.	Killed.	Injured.
Engineers	16	230	11	205
Firemen	21	304	12	225
Brakemen	13	60	9	74
Conductors	3	14	1	6
Switchmen	1	8	..	6
Roundhouse and shop employees:				
Boiler makers	..	11	1	11
Machinists	..	8	1	11
Foremen	..	1	1	3
Inspectors	..	3	..	3
Watchmen	..	5	..	8
Boiler washers	..	7	..	10
Hostlers	..	6	..	6
Other roundhouse and shop employees	2	19	1	21
Other employees	5	22	..	7
Non-employees	1	23	1	3
Total	62	721	38	599

Briefly summarizing, for the purpose of comparison, the record of accidents caused by failure of locomotives or tenders, or any part thereof, which were investigated by this bureau, as required by the law as amended, shows a total of 616 accidents, with 62 killed and 721 injured thereby. Of these accidents, 389, in which 52 persons were killed and 469 injured, were due to failure of locomotive boilers or some part or appurtenance thereof, and this may properly be compared with the record of accidents and casualties investigated by this bureau under the locomotive boiler inspection law, as shown in former annual reports. Two hundred and twenty-seven of the accidents shown in this report, in which 10 persons were killed and 252 injured, were caused by failure of some part of the locomotive or tender other than the boiler and its appurtenances, and were investigated under the amended law.



Relation of Defective Locomotives to Accidents and Casualties Resulting from Locomotive Failures

Much of the increase in the number of defective locomotives and the accidents and casualties resulting from failure thereof has, no doubt, been brought about by unprecedented operating conditions, which, together with the shortage of labor and material, has made difficult the proper maintenance of locomotives.

This, however, is not a justification for the operation by any carrier of locomotives that are in an improper condition for service, and the fact that some carriers by diligent efforts and careful supervision of repairs have not only maintained the condition of their locomotives, but have actually improved it during the past year, thereby increasing

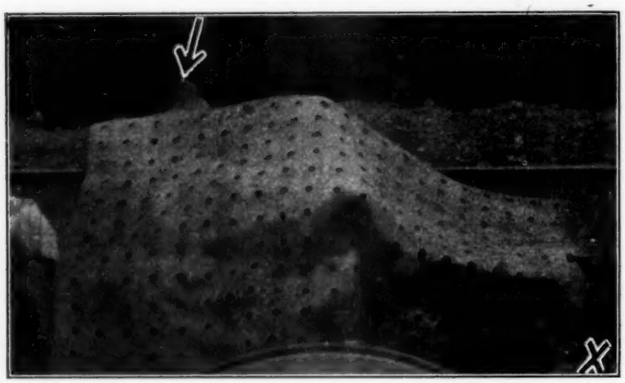
operative efficiency, is evidence that it can be done even under the present exacting operating conditions.

The problems which have confronted this bureau in the matter of withholding locomotives from service when defective and in violation of the law, under the operating conditions which have existed since the declaration of war and during the months immediately preceding it, have been unusually difficult and have required the most careful consideration. The importance of the prompt, as well as safe, movement of trains has been constantly in mind, and every privilege consistent with the purpose of the law has been granted.

It is to be regretted that some carriers appear to consider a congestion of traffic as a legitimate excuse for operating locomotives that are known to be in an improper condition for service and in violation of the law, and this is done to an extent that, I believe, fully justifies the statement that on such roads running repairs are neglected to an extent which, if continued, will cause serious interference to traffic during the coming winter in spite of the most diligent efforts of the limited force of Federal inspectors to enforce maintenance of locomotives as required by the law.

Six hundred and sixteen accidents caused by failure of locomotives or tenders or some part or appurtenance thereof, including the boiler, have been investigated during the past year.

Accident investigation is only of value when the knowledge gained thereby is used to prevent similar accidents. The result of a single investigation may not be sufficiently conclusive to base a change in methods or equipment thereon, but where investigations cover numerous accidents extending over a period of years, changes can be recommended which can reasonably be expected to be of substantial value in preventing accidents of a similar character.



A Crown Sheet After an Explosion Due to Low Water

This crown sheet was welded by the oxy-acetylene process to the side, tube and door sheets. The arrow shows where it tore a piece out of the left side sheet and the cross shows how a small patch welded to the tube sheet was pulled off with the crown sheet.

The similarity of the effect of accidents of certain types clearly points to improvements in construction or in methods which will promote safety in the operation of locomotives.

The advisability of recommending additional rules at this time has been given careful consideration, with a view to avoiding, as far as consistent with the purpose of the law, regulations which would require additional equipment or labor during the war, except where it has been demonstrated that both safety and efficiency will be increased thereby.

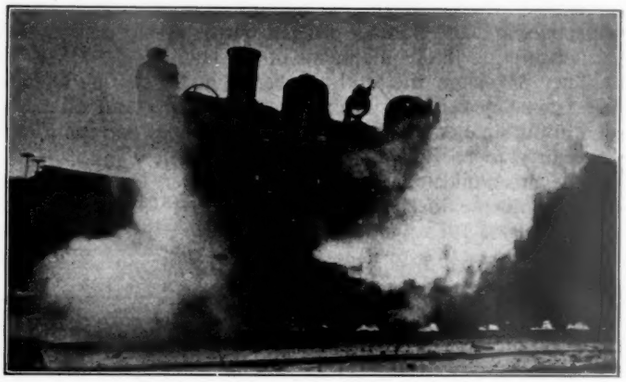
In accordance with the above the following recommendations with the reasons therefor are made:

First.—New locomotives placed in service should have a mechanically operated fire door, so constructed that it may be operated by pressure of the foot on a pedal or push button, or other suitable appliance, located in the deck or floor of the cab or tender at a suitable distance from the fire door, so that it may be conveniently operated by the fireman from his position while engaged in firing such locomotive. Locomotives now in service should be equipped with a mechanically operated fire door, as above described, the first time they are shopped for general or heavy repairs, and all locomotives should be so equipped within a reasonable time; provided, that the above recommendation should not apply to locomotives equipped with mechanical stokers nor to locomotives using oil for fuel.

Second.—Air operated power reversing gear should also have a steam connection, with an operating valve conveniently located in the cab, and so arranged that in case of air failure steam may be quickly used to operate the reversing gear.

Third.—Holes for plugs or studs in boiler sheets should have a good thread the full thickness of the sheet in which they are applied, and all plugs and studs and other fittings should be screwed through the sheet. Plugs, studs, or other boiler fittings should not be repaired by calking, and under no circumstances should an attempt be made to tighten them while there is steam pressure on the boiler.

The first recommendation is based on the result of hundreds of investigations of boiler failures of a character which permits the steam and water contained in the boiler to be discharged into the fire box. With the swing type door, which is at present largely used, such a failure invariably results in blowing the fire door open and discharging steam and boiling water, together with the contents of the fire box, into the cab of the locomotive, seriously or fatally burning persons therein. The automatic fire door will remain closed if the failure occurs while it is closed; and if the failure occurs while it is open, it will automatically close the instant the fireman's foot is removed from the operating device, thus preventing the direct discharge of steam and scalding water into the cab of the locomotive.



A Locomotive Held Out of Service on Account of Steam Leaks

Steam Leaks Due to a Cracked Cylinder Found by the Government Inspectors

The second recommendation is made because defects to certain types of brake equipment, which results in the loss of main reservoir pressure, not only renders the brake inoperative, but renders the air operated reversing gear also inoperative. When this occurs on a locomotive being op-

erated light, it results in the complete loss of control of the locomotive.

The third recommendation is based on an investigation of more than 200 accidents, due to plugs, studs, or other boiler fittings blowing out. In a large percentage of the cases it was due to improper application, as the plug, stud, or fitting had only been screwed part way through the sheet, while in some cases not more than two or three threads were holding in the sheet.

No formal appeal from the decision of any inspector has been filed during the year.

The accompanying chart shows the relation between the percentage of locomotives found defective and the number of accidents and casualties resulting from failure thereof and illustrates the result of operating defective locomotives. It does not accurately represent the results of the law, because prior to September 4, 1915, the law only applied to locomotive boilers and their appurtenances, while since that date it includes the entire locomotive and tender and all their parts and appurtenances; therefore, the increase in the percentage of locomotives found defective, also in the accidents and casualties since that date is largely due to the extension of the law to include the entire locomotive and tender.

It should be noted that the record of accidents and casualties at the close of the fiscal year ended June 30, 1917, is well below the record for 1912, although the record for 1917 includes 227 accidents and 262 casualties, due to failure of parts of the locomotive and tender which were not covered by the original boiler inspection law and therefore not included in the 1912 report.

COMMISSIONER McCHORD ADVOCATES UNIFIED GOVERNMENT CONTROL

The special report of the Interstate Commerce Commission to Congress, recommending unification of railroad operation, was published in last week's issue. Commissioner McChord filed a minority report, opposing the suggestion that the unification be allowed to be effected by the carriers themselves. In full his report was as follows:

The special report of the majority of the commission leaves unsaid some things which should be plainly stated, if prompt and sure relief is to be brought to the present transportation situation. That the lack of adequate railroad service, particularly in eastern territory, is serious at the present time and is a cause of grave concern for the coming winter months needs no demonstration. Every one knows it who knows anything about present business conditions. That the industries of the country engaged in making war materials as well as those not so occupied require the very best service which can be given by the railroads is also clear. I fully concur in the statement of the majority report that "it is necessary that our transportation systems be placed and kept on the plane of highest efficiency," and also that "this can only be secured through unification of their operation during the period of war." But the majority report takes the position, at least by implication, that this unification may "be effected by the carriers" themselves. With that judgment I wholly disagree.

The carriers' co-operative effort at the present time is in charge of the "Executive Committee of the Special Committee on National Defense of the American Railway Association." This committee in its public announcements calls itself the Railroad War Board. It is the fifth committee that the railroads have had in Washington to deal with the transportation situation since November, 1916. The first two of those committees were given no real authority, although the commission was advised by the executives that they had been given full power, or as it was expressed in the case of the first committee, "all the power of the executives." These committees, therefore, were unable to cope with the situation, despite earnest and praiseworthy efforts of their individual members who were hampered by the unwillingness of certain railroads, acting under the restraint of executive influence, to carry out their instructions. These facts have been reported by the commission, *Car Supply Investigation,* 42 I. C. C. 657. In that report both the majority and the minority expressed the view that the situation could be improved by a committee of railroad officers to act in co-operation with this commission if the committee were given plenary power by all the railroads. In apparent response to that suggestion a third committee was sent to Washington in January, 1917, but it also had not been given the promised power and was therefore not received. In February, a fourth committee was sent to Washington to enforce certain car service rules. Not all of the railroads believed that these rules were workable and hence the agreement giving power to this committee was incomplete and inadequate. With this experience behind it the American Railway Association, on April 11, 1917, formed its special committee on national defense, and centered the chief authority in its executive committee. The resolution by which this committee was formed recites that the railroads of the United States pledged themselves, with the government of the United States, with the governments of the several states, and with one another, that during the present war they would:

"co-ordinate their operations in a continental railway system, merging during such period all their merely individual and competitive activities in the effort to produce a maximum of national transportation efficiency."

It was understood that the co-ordination of railway operations in a continental railway system meant that cars would be used interchangeably and sent where they were most needed, that track and terminal facilities would be opened up to all railroads, so as to relieve congestion, and that locomotives would be at once requisitioned from some of the strong and less burdened railroads for use on the important lines which have been unable to give efficient service largely because they were badly in need of motive power. Yet as late as November 24 the carriers' committee made an announcement from which the following is quoted:

"The Railroads' War Board today adopted revolutionary measures in order to relieve the congestion of traffic on the eastern railways. It directed 'that all available facilities on all railroads east of Chicago be pooled to the extent necessary to furnish maximum freight movement.' The effect will be that to the full extent that conditions render it desirable these railways will be operated as a unit, entirely regardless of their ownership and individual interests.

"The operating vice-presidents of the eastern lines have been appointed a committee to operate as a unit all the lines involved, and have been given instructions and authority to adopt all measures which in their judgment may be necessary to relieve the present situation and assure the maximum amount of transportation." * * * "An important part of the plan adopted for the operation of the eastern lines is that of placing at their disposal the facilities of railways in other territories to such extent as may be necessary."

These measures—the pooling of cars, the operation of railways as a unit, the placing of facilities at the disposal of railways in other territories as needed—are essential steps in the co-ordination of railway operations "in a continental railway system," using the phrase of the resolution of April 11, but were not taken until November 24.

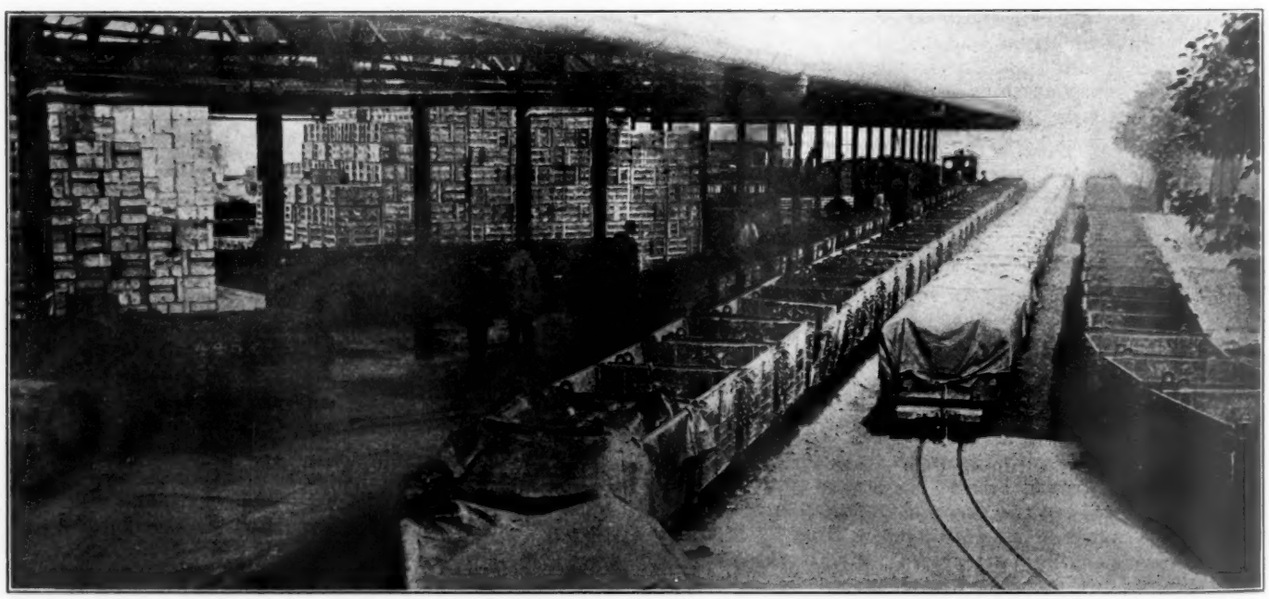
I do not wish to be understood as saying that the carriers' committee has not accomplished results; nor that the shippers have not co-operated with the carriers to get greater service from the available equipment, for the heavier carloading has been a very material factor of improvement. But our experience with railroad committees during the past year makes me believe that no voluntary committee can accomplish what the situation demands. One of the principal reasons is that the element of self-interest, the traffic influence, is a persistent factor in postponing and resisting measures that seek to disregard individual rights in the effort to secure transportation results as a whole. The

"merely individual and competitive activities" and the established operating practices have their effect, despite directions or recommendations that have no sanction to enforce them except a voluntary agreement which is very general in character. There runs also in the activities of these committees the self-evident purpose to do whatever appears to be necessary to prevent the governmental authority from acting. For these and other reasons, which it is not necessary to state, I cannot concur in a report to the Congress which apparently acquiesces in a continuation of control over the transportation situation by a committee appointed by the carriers themselves. The suggestions with reference to the anti-trust laws, the anti-pooling provision of section 5 of the act, the desirability of government loans for capital purposes, and the regulation of security issues, undoubtedly have merit, but in my judgment their enactment into law will not make it possible for any committee appointed by the carriers to secure the full measure of transportation service which the present conditions demand.

The "unification" needed if our transportation systems are to be "placed and kept on the plane of highest efficiency," is the unification of the present diversified governmental control. At the present time there are several federal agencies authorized by law to issue orders or directions with respect to transportation. This commission, by the car service act, approved May 29, 1917, was given very broad powers to issue summary directions with respect to the movement, distribution, exchange, interchange, and return of cars. The priority director, designated by the President for that purpose under the act approved August 10, 1917, is authorized to direct that traffic essential to the national defense shall be given priority in transportation, and he has made certain orders of that character. The transportation of troops and material of war, under the amendment to the act to regulate commerce, approved August 29, 1916, is required upon the demand of the President to be given preference over all other traffic in time of war, and by direction of the army and navy departments and the United States Shipping Board preference orders have been given for the transportation of a very large tonnage of war materials and supplies of all kinds. The administrations controlling fuel and food, to which adequate transportation is of course vital, have taken an active interest in the movement of those commodities through their appointed agents. Under this diversified control the carriers are not able to meet the requirements of the increasingly heavy tonnage which must be moved. In consequence the industries devoted to war purposes and those engaged in their normal business are suffering. There is no institution in which regularity of operation is more requisite than in transportation, but railroad operation is approaching a chaotic condition. A coherent plan must be worked out which shall provide for both the needs of the government in the energetic prosecution of the war and the needs of general commerce. It is imperative that war material be given preference in transportation but the financial sinews of war depend in large measure upon the successful operation of our manufacturing plants and business establishments.

I concur in the view that "the situation does not permit of temporizing," but I am convinced that the strong arm of governmental authority is essential if the transportation situation is to be radically improved. That authority must be unified to make possible action that is both vigorous and consistent. If the President elects to exercise the power given him, under the act approved August 29, 1916, to take possession and assume control of the transportation systems, I believe that vastly improved transportation conditions can be promptly secured. For this course legislation assuring the carriers a fair return may be appropriate. If the President does not so elect, it is my judgment that the authority over the regulation of railroad operations now vested in the several agencies referred to, with such amplification as may be necessary, should be promptly centralized by act of Congress. All of the forces now at work upon the problem, including the carriers' executive committee and its numerous sub-committees, could be at once utilized, under a single governmental administrative control.

THE TOTAL OF MANUFACTURES EXPORTED in nine months of 1917 is $3,020,000,000 against $728,000,000 in the same months of 1914, according to an analysis of The National City Bank of New York.



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A Light Railway Supply Depot Behind the British Lines

Pooling Railroad Equipment and Facilities

Discussion of the Physical Problems of Pooling Equipment and the Needlessness of Government Control

By Samuel G. Thomson

MUCH confusion is rampant in many minds concerning the pooling of the physical facilities of our railroads. Such questions are being asked as: How will it affect the financial return? How quickly and to what extent should physical results be obtained? As a consequence, government ownership and government operation are now advanced on every side as a remedy for the present financial and physical conditions of our railroads. Mr. Vanderlip foresees government ownership as a financial necessity, "Unless something radical is done to convince the public that railroad shares and bonds are good securities." He regards it not as a choice of method, but rather as a tragic alternative. The way things are now drifting, we may well agree with Mr. Vanderlip; since, where except in the government shall we find any other purchaser or source of credit, unless the American people have a change of heart?

Expectations Too High

We hear much "half-baked" theory expressed at commission hearings and before various investigating committees; and there is also a lot of loose talk going the rounds in Washington and elsewhere concerning the breaking down of our transportation system, including extraordinary opinions as to what ought to be accomplished by the railroads in order to meet the present emergency. The expectations even in high government circles seem to be very much over-developed in regard to what should be accomplished with present facilities in relieving the congestion this winter, and considerable disappointment is already shown because the railroads are not making two cars grow up where one already has been performing 15 per cent more service than ever before.

The railroads *have been* almost performing miracles, in expanding the service-capacity of their cars by co-operation with the shippers, and by the thousand-and-one other services which they have been rendering without additional compensation. But yet we hear this talk that the railroads will be given a last chance to see what pooling will accomplish, and that if this does not bring the necessary result, the railroads then will have to be taken over and be operated by the government.

Our present danger then is, the running wild of expectations which are not limited by proper conception of the practical difficulties to be overcome and of the intricate ramifications of the railroad business. Much serious damage may be done to the transportation industry of the country unless governmental agencies are willing to work closer to the ground in placing reasonable limitations on what they consider will be an adequate performance by the railroads. But can we expect government agency and rule by commissions to determine what is a good performance in lines which are entirely out of their specialized activity? Perhaps we can arouse a public sentiment which will say, "Well Done!" before the lawmakers have another chance to add to the "garbage division" of our present regulatory statutes, and before another cry of "failure" has a chance to crowd the government into the railroad business.

It is granted that the railroads, in their capacity as public utilities, must have some regulation by representatives of the public, and we admit that part of our regulatory statutes are good and fair: but commission rulers, bureau-heads and legislators will do well in the present emergency to forget their radical ideas of progress, and to focus on the many ways in which these agencies might help in the *relaxation* of past over-zealous expectations and restrictions which are already enacted into federal and state laws. To meet this situation the railroad officials are rightfully and patiently saying: "Tell us what you want done and we will be able to do it better than anyone else."

There is no better corps of executives and employees to be found in the world today for meeting emergencies than is now in charge of our American railroads from the presidents down to the crossing watchmen. Would it not be doing our part to accept the best that can be done by these men who *already are* our transportation representatives, rather than to consider new laws and to talk government operation; and thus to advocate "jumping out of the frying pan into the fire"? Let us then by public sentiment try to place limitations on what is to be considered a well performed task, so as to minimize the business mistakes of the war-business, and, incidentally, to preserve some future for our railroads.

It will be easy during the next few months to aggravate matters by expecting too much from a general pooling of railroad facilities and equipment. This co-operative operation will accomplish much in speeding up the car movement, and possibly in increasing the financial return to some railroads; but railroad men will not have time to talk for publication about their troubles, nor will they have the opportunity to present to government officials even a small part of the difficulties involved. It may, therefore, be all the easier for those unfamiliar with the details and routine of railroad operation to think that all there is to do is to start to use all of the equipment in a given section of the country on a completely unified system of the railroads throughout that section, and then to expect the results to be multiplied in proportion to the magnitude of the consolidation. It is surprising how many there are outside of the immediate railroad circle who have this idea, and who are willing to make a public expression of their railroad knowledge.

Practical Difficulties

With curtailed service and congestion ahead of us for this winter, regardless of the best that the railroads can do, it may be fitting to touch upon a few of the practical difficulties that will dampen the enthusiasm of those who expect too much from pooling operation and the relaxation of laws. It is unnecessary to dwell on the most vital drawback of all—the total available terminal facilities in a given congested district. The best the railroads can do in this is to keep surplus business away so that cars can be kept moving up to the capacity of the terminals.

Those who are unfamiliar may also think that it will be fine for the railroads to call on each other for locomotives. They may not stop to consider that all locomotives which "can turn a wheel" are now in use, even to the extent of robbing the passenger service to help the freight; nor may they be aware of the large proportion of time that a locomotive stands in the engine-house or shop waiting for material and supplies, even when at home on their own divisions. These delays are part of the practical operation of a railroad and apply particularly at points where the stores' department has neglected or has been unable to keep up the supplies and spare parts of the particular locomotives which are standard to their division. What will happen when these locomotives suddenly turn up on a strange railroad and make request

for the customary running repairs, or report to a strange shop as a cripple? These same locomotives will wait until the shop nearest to the breakdown makes the specialized broken part, or sends the proper size of packing, or orders a casting "from home"; and in this connection we might stop to reflect that a locomotive which can haul a hundred cars and which costs $100,000 might be held up for a day or a week because the threads have stripped on a nut of the injector pipe, or on account of some even less serious ailment, if proper material could not be obtained.

A locomotive is not much good to a foreign road, or even to an outlying division of its own road, without a stock of standard repair parts in the storehouse at both ends of its regular run. It will not be necessary to relate the experience of a "tramp locomotive" which on any railroad finds it necessary to work in a freight pool over a number of scattered divisions—any more than to say that it gets "a lick and a promise," "a trip on three legs," "leaking steam: cannot see ahead," "tied up the whole division," "sent home light to main shop for repairs."

"Mr. Government Operator" may say that the railroads will have to keep necessary material on hand, as well as competent men to handle and to order this material and to make proper repairs. He may forget, however, that most kinds of railroad materials are now very hard to get, and that many of the railroad's former expert workers are in the trenches or training camps, or in a neighboring shipbuilding plant getting double the wages that a railroad can afford to pay. He may also forget that in the enginehouse they are now doing the best they can with many men who hardly know the difference between a monkey-wrench and a fire-hook. What practical remedies will a change in railroad management accomplish?

Some may expect that large consignments of locomotives will be brought quickly from the West and started to work in hauling trains through the districts where the railroads do not have enough motive power for present business. They may not stop to think that the shop and locomotive terminal facilities of these eastern roads are already overtaxed in taking care of their own equipment. "Mr. Government Operator" may say that these shops and locomotive terminal facilities will have to be made adequate for these additional locomotives by the transfer of machine tools and employees from Western lines, in order that results may be obtained this Winter. He, of course, does not appreciate how much the time element is a factor in such operations, and that if anything is attempted in making transfers of this kind, it would be a matter of many months before substantial results could be shown and the new organizations working smoothly.

The mere matter of planning just what transfers of shop facilities can and should be made is a stupendous expert task which would be thrown upon the railroad mechanical organizations at a time when they can hardly keep the wheels turning with their present facilities and equipment. It would, therefore, seem that transferred mechanical assistance in any large proportion will be out of the question for this Winter in relieving the congestion and in reducing the lack of cars and power which is almost inevitable. This time element, therefore, is food for thought for those who will be inclined to say that the railroads are breaking down and have failed in their latest pooling project; and again we may inquire what practical means these critics would bring to bear in order to get quicker results under government operation.

Likewise, the advocate of nationalization, if in his liberality he should depart so far from the teachings of his cult as to advocate that the Government should assume responsibility for its acts in trying to obtain net returns from its operation, would do well to ponder that an effective shifting of locomotives with their standard extra-parts and supplies, as well as a transfer of machinery and men, would be very costly for the railroads. This extra adjustment burden would have to be absorbed in the operating expense of his Ideal System, as is now probably expected of the railroads involved in the pooling plans, and he might find that this, with other unexpected costs of operation, might transform his "net earnings" into an additional federal tax from the people for the benefit of transportation.

In the pooling of freight cars, we may fare a little better than with locomotives, since it has been the business of the freight car to travel around the country and to carry its load to its destination without much transfer of lading. However, there are also many classes of cars which are quite domesticated in their activities. They might be classed with the locomotive which only likes to travel a hundred miles at a time, and that, too, on its own home road. These specialized cars are particularly adapted for local service in certain districts and have not become accustomed to the "Cooks Tour" circuit. They represent the largest part of the car equipment of the country, since it is the box car principally which has become a familiar visitor to shops away from home, as well as a vulnerable subject for the foreign road-repair billing clerk and a liberal contributor to the other "Customs charges" of the freight car pool.

We cannot then hope that all equipment of the various railroads can be thrown together satisfactorily and economically for general utility, as even in the "traveled" box car class we all remember when yards and shops were congested with foreign cars waiting for material from home; and we also recall the increased time and cost for repairs, on account of their repair parts not being standard and not carried in stock on the foreign roads. And to appreciate our troubles still further, we may well consider how much mileage we would get in a country-wide pool from the specialized home varieties of equipment, which forms a large part of the total.

Our railroads must come to an enlargment of the "Traveler Division" of their equipment. They must at least add to it hopper coal cars and gondolas; and it may be that the present emergency pool may serve to hasten the adoption on the various railroads of the same designs for these several types of cars in this "traveler" division. But this is not a matter to be accomplished this winter; and it is enough to say in pointing out this defect, that there are probably a thousand different railroads in the country with a corresponding thousand different designs of box cars of 60,000 capacity, which have a thousand different designs of center sills no one of which can be substituted for the other. We may understand how difficult this lack of standardization makes our repair and car service problem when we multiply this number of designs by the number of different capacities of box cars—not to mention the many different kinds of specialized cars which have heretofore been operating in their home districts. Our immediate car pool operation will save much empty mileage and will improve car service; but it also presents many difficulties, and the remedy is not a very rosy one to solve by commission rule. We are not yet ready for *economic* pooling of railroad car equipment. The situation however is not hopeless; but a discussion of a practical solution which can be developed gradually by the railroads themselves to greatly help future operation is hardly within the scope of this article.

Conclusions

The advocates of Government operation who expect big things from this momentous pooling departure will see, therefore, that even with car equipment—the most flexible and adaptable agent for pooling—there are "many bugs in the ointment," which may interfere with rapid progress and with the accomplishment of the ideal which they think ought to be obtained by working the railroads as one united national system. So let us conclude that the best that can be done will be by the co-operative effort of our railroad operat-

ing executives now assembled; that whatever is accomplished by pooling probably will be much more costly than normal operation—as far as the use of equipment and mechanical facilities is concerned; that our expectations for relieving the congestion and for the decrease of car shortage should not be distorted; that government operation cannot be more than a costly and roundabout attempt to accomplish results by means of the railroad executives who are *already at work;* that there is rough sledding ahead for the railroads even after the war; and that not all of the way will be made smooth by the raising of rates.

For our friends who argue that the railroads do not need an increase in rates on account of the many savings that will be realized from a united and concentrated railroad operation, we may add that they should consider how far these various physical and mechanical difficulties will offset the advantages of rerouting, redistribution and other benefits of co-operative pooling. And for the attention of our lawmakers and commissioners; let them become substitute when they speak of "taking over the railroads." Have they anything constructive to suggest in meeting the very practical difficulties mentioned above? "Anyone can tear down a house, but it takes a carpenter to build one." May we not warn, that the house cleaning which they suggest will but resolve itself into a "stir-up" for a protracted period which, if it does not break up some of the furniture, will only result in putting the bed where the bureau was, and in changing the railroads from the credit to the debit side of the ledger; and then we would proceed along as before, in having some bureau-agent of the government ask our railroads' experts to go ahead and do the best they can.

What particular results and what practical remedies have these same advocates in mind when they say that the President will have to operate the railroads as a military necessity? Let us answer quickly, that the military necessity of the country today is to keep the many thousands of mines and manufacturing plants running to capacity and to get their product on the boats. There is no one in America today who knows as well how to do this as the expert operating and traffic officials of the railroads; and let us venture to suggest that, with the supervision of their own War Board and with a few general necessities indicated by the governmental departments, it might even be left to the judgment of our railroad experts, who are in daily contact with the industrial world, to use discrimination as to which plant was the most important. Our priority troubles might then melt away and no longer be a hindrance to transportation. It might be well for the country if we could "let our railroad officers in on" this managing of the war business. We greatly need this army of expert help, and at its highest efficiency.

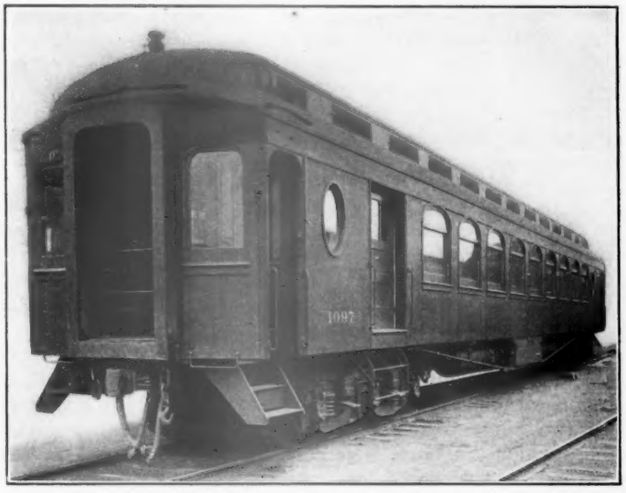
Is *pool operation* the misleading element in all this confusion of generalities? If it is, let us not be deceived in thinking that all we have to do is for the Congress to cancel some of their anti-pooling mistakes and then throw the railroads together for one grand "clean up" under bureaucratic operation. Pooling has its bad points as well as its good ones, and a few of the former are cited above in *only one department* of the railroad business. Our railroad officers and committees will understand best how to get the most out of pool co-operation during the war, both as to physical and financial results. Enforced pooling into undesirable channels would be a catastrophe, and might result, with reference to car equipment, in our finding on our hands a surprisingly increased proportion of it out of service for repairs at a time when it was most needed. This enforced pooling is probably what many have in mind when they think of government control and a country wide transportation system.

We dare not "swap horses in the middle of the stream"; and—except for a temporary and reasonable relaxation of restriction on co-operation—we cannot, by annulling or by making laws, expect to create new methods and new conditions to help the railroad during the war which would not at the same time be just as efficient and just as profitable after the war. For the present emergency, the railroads could agree among themselves to share their terminals and routes, and perhaps some of their earnings, if laws are adjusted accordingly; but that is about as far as it should go; and in going this far, let us bear in mind that the railroad executives should be allowed to use their own pooling methods.

Co-operative competition with less regulation among privately owned railroads, should be our plan now and for the future. A little perusal of some of the troublesome and practical details of railroading may sober the judgment of those who are advancing large general theories for the revolution of the transportation business of our country. Let us discard the pet phrases: "Take over the railroads," "Government Ownership," "Unity of Railroads," "Country-Wide Pool"; and let us think more about co-operation under a plan which will not transform the railroads into absolute utilities but rather will allow them for the present and in the future to remain partially in the field of private business under reasonable business competition and co-operation. Our railroad executives are anxious to pool for war service their terminals and their various other facilities in which they have an advantage over their competitors; but after the war, they should have the exclusive benefit of these facilities to be used in reasonable business competition, if our railroad systems are to be developed and are to keep step with the needs of the country. Some people cannot understand how we could have competition and co-operation at the same time; but if they were willing to get a little closer to the greatest business men which the country has produced and many of whom are now donating much of their time to the Government for service and for consultation, they would soon learn that this joining of hands of competition and co-operation is the principle which will have to be relied upon to work out the salvation of our railroads.

HOSPITAL CAR FOR THE ERIE

To meet the demands of the Government for appropriate cars in which to transport sick or wounded soldiers, the Erie has remodeled a 70-ft. steel underframe parlor car, as



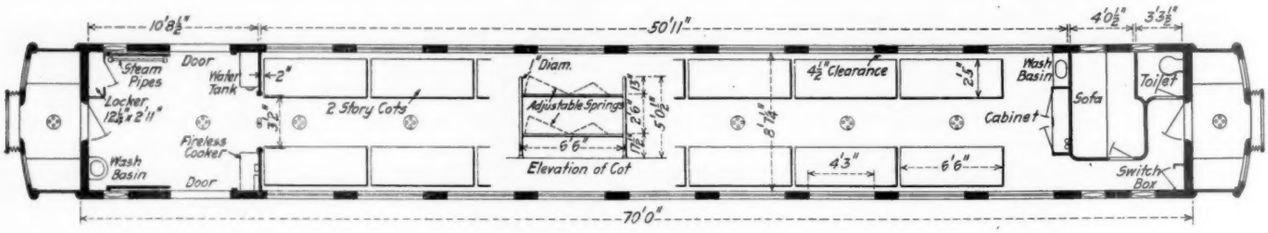
Erie Hospital Car

shown in the illustrations, providing it with 28 adjustable cots placed in two tiers. The car is provided with a receiving and supply room 10 ft. 8½ in. long, with a sliding door

at each side, at one end of the car. At the other end is a small rest room for the nurses, provided with a sofa and lavatory. The main portion of the car is about 50 ft. 6 in. long and contains seven two-story cots on each side.

The two-story cots are of a new design furnished by Frank A. Hall & Sons, New York. The springs of these cots are adjustable to any desired position for a patient's back or legs. This is clearly shown by a sketch on the floor plan of the car. The cots are finished in white enamel.

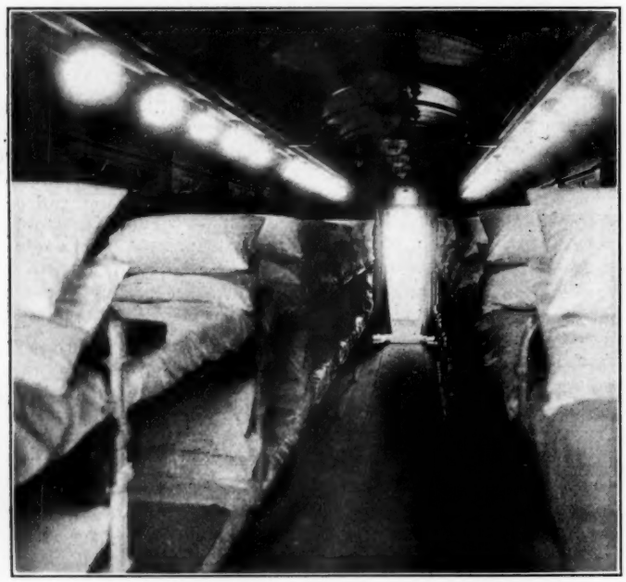
The supply room contains a fireless cooker, drinking water



Floor Plan of Erie Hospital Car

tank, wash basin and supply locker. The annunciator on which calls from any part of the car are indicated is also located here. It is separated from the main compartment by heavy rubber curtains.

The car is equipped with electric lights, the lighting fix-



Interior View of the Erie Hospital Car

tures being located on the side decks. Emergency lights are provided by Pintsch gas lamps located in the center of the upper deck. The interior finish of the car is a light gray, which is easy to the eyes.

TWENTY MEN IN GAS MASKS IN AIR-TIGHT CAR.—An abandoned freight car was recently used as a gas house at Camp Meade, Md., and twenty chaps of the 27th Engineers for two hours battled against the deadly fumes similar to those which the Huns unloose on the troops overseas. The car had been prepared for several days for the test and had been hermetically sealed. The men were cautioned to adjust the masks before they ventured into the danger zone, and the moment the car door was slammed the gas was turned on full force; every man came out apparently without a single handicap other than the weight of his mask.

WASHINGTON CORRESPONDENCE

WASHINGTON, D. C., December 11, 1917.

FOOD, FUEL AND MILITARY SUPPLIES GIVEN PRIORITY

A general priority order to the railroads to give preference in car supply and movement to fuel, food and military supplies was issued by Judge R. S. Lovett, priority director, on December 7. The question of what such an order should provide had been the subject of numerous conferences with railroad and government officers for several days. Both the food and the fuel administrations had asked for general orders but the railroads had opposed the idea of too sweeping an order unless some plan were put into effect which would provide for a co-ordination of the requirements of the government. The Railroads' War Board expressed approval of the form in which the order was issued but urged that its success would depend upon the co-ordination of the traffic management of government business and relations with the railroads. The order provides for preference in the following order:

First—Steam railroad fuel for current use.

Second—Live stock, perishable freight, food and feed.

Third—(a) Shipments of military supplies when consigned direct to the United States government or the authorized officers of the United States army, navy or shipping board, or to the Allies or the proper representatives thereof, destined to any cantonment, post or encampment, to any point of export for movement thence to Europe, to any arsenal or navy yard, or material to any shipbuilding plant under contract to the United States shipping board for the sole purpose of constructing vessels for that board.

(b) Other shipments for the United States government, as the same may be authorized from time to time as necessary in particular cases, but only upon request of the United States army, United States navy and United States shipping board, through a designated officer or representative of the respective departments, located in Washington.

Fourth—Coal to and for by-product coking plants, and not subject to reconsignment.

Fifth—Preference and priority in movement only to coal for current use, but not for storage, consigned direct (and not subject to reconsignment) to hospitals, schools and other public institutions, retailers of coal for use in supplying domestic consumers only; and to coal, coke and raw materials for current use, but not for storage, consigned direct (and not subject to reconsignment) to blast furnaces, foundries, iron and steel mills, smelters, manufacturers engaged in work for the United States government or its Allies, public utilities (including street and interurban railways, electric power and lighting plants, gas plants, water and sewer works), flour mills, sugar factories, fertilizer factories and shipbuilders; also shipments of paper, petroleum and petroleum products.

ROUTING EXPORTS VIA SOUTHERN PORTS

The desirability of routing as much as possible of the export freight via Gulf and South Atlantic ports instead of North Atlantic ports, in order to keep it out of the congested

eastern district, has received a great deal of attention at the hands of railroad and government officers in the past two weeks and although no general plan has been adopted a great deal has already been accomplished. Edward Chambers, vice-president of the Santa Fe and head of the transportation division of the Food Administration, has devoted special attention to the subject and has arranged for routing much of the exported food supplies for the Allies via Southern ports. Following a meeting of the Export Co-ordinating Committee on Wednesday, it was announced that instructions had been issued by the Traffic Executive representing the Allies that all grain for the Allies originating west of the Indiana-Illinois line will be shipped through the Gulf ports. Orders were also issued to divert to the Southern ports over 100,000 tons of billets and bars.

To relieve the congestion on eastern lines and enable the return of box cars to western lines for use in handling grain,

B-A-W-W
WE DEMAND 100% WAGE INCREASE
HUSH! YOURS NOT HURT ANY MORE THAN THE REST OF US
THE PINCH OF THE TIMES
TRAINMEN
THE WORLD CALAMITY

The New York Tribune.

Interrupting an Emergency Case

the Commission on Car Service at the request of the United States Food Administration on December 6 declared a zonal embargo, effective on December 8, against the loading, reconsignment or movement of carload corn and oats into territory south of the Canadian boundary, east of the line separating Wisconsin and Michigan, Indiana and Illinois, and north of the Ohio and Potomac rivers from points outside. No exceptions to this embargo will be made except as authorized by Commission on Car Service. It is understood that a supply of corn and oats for domestic consumption within the embargo territory may be secured within the same territory.

For some time the congestion on eastern lines has been absorbing and holding cars properly belonging to the western section of the country. It is expected that this embargo, in addition to the diversion of a large volume of traffic by shipments of grain and other supplies for the Allies to the Gulf and South Atlantic ports, will allow the cars belonging to the western lines to be returned to that section for use, and at the same time allow more prompt handling of the freight in the eastern section of the country by lessening the number of cars to be handled by the eastern railroads.

The embargo will stop movement of corn and oats into the already badly congested eastern section of the country, and a supply of corn and oats for domestic consumption within the embargoed territory will be secured at points of production within that territory.

The western lines are considerably short of the number of box cars they own, and need these cars very badly for grain movement at this time. The Car Service Commission a short time ago issued an order requiring eastern lines to deliver to western lines approximately ten thousand box cars to relieve conditions the present embargo is designed to overcome, but the returns to date show rather light deliveries to the western lines.

State Commissioner Testifies Before Newlands Committee

The Newlands Joint Committee on Interstate Commerce on Tuesday resumed its hearings on the subject of railroad regulation for the purpose of hearing from state railway commissioners, members of the legislative committee of the National Association of Railway and Utilities Commissioners. Carl D. Jackson, chairman of the Wisconsin Railroad Commission, opposed the proposal of the railroads that regulation be centralized in the hands of the federal government, saying that before destroying the power of the states Congress should make a study of what is wrong in state regulation that should be corrected. Mr. Jackson was in favor, however, of federal regulation of issues of stocks and bonds.

Mr. Jackson described the work of the Wisconsin commissions to show that it is not open to some of the criticisms that the railroads have made of state regulation in general. "Utilities are regulated in Wisconsin," he said, "on the theory that regulated monopoly is desirable and that competition is undesirable. It is cheaper for the people to have one company do the work than to have two competing companies. In the end the public pays the cost of competition.

"We allow no duplication of facilities and require each company to obtain a certificate of public necessity. Some utilities have been taken over by municipalities but I believe the tendency in Wisconsin is against public ownership. Most of those that have been taken over are water companies because the electric light companies that are owned by municipalities are not doing well."

Mr. Jackson said that intrastate rates in Wisconsin are not in conflict with interstate rates because the commission has always taken the interstate rates into consideration in fixing them and that they are in general slightly higher per mile than the interstate rates because of the shorter haul over which the terminal expense is distributed. He said there had never been any conflict between the state rates and the interstate rates or between the state authorities and the Interstate Commerce Commission.

He opposed the centralization of regulating authority, saying: "In my opinion such a consummation is not sound, not founded on good public policy and in the long run would not be beneficial to the carriers themselves. The functions now performed by the state commissions have got to be performed by some one and if they are to be performed by the federal government its powers should be as complete and thorough as that now exercised by the states."

There was some discussion by members of the committee of discontinuing the investigation for a time, because the President was expected shortly to take over the operation of the railroads, which would postpone questions of railroad

regulation. It was decided, however, to hear some of the state commissioners who had appeared.

Western Rate Hearing Postponed

The hearing before the Interstate Commerce Commission set for December 17 for the purpose of considering the application of the western railroads for increases in freight rates has been indefinitely postponed at the request of the special executive committee representing the western lines.

E. S. Keeley, vice-president of the Chicago, Milwaukee & St. Paul, and chairman of the committee, wrote to the commission saying that the recommendations in its special report to Congress and the uncertainty as to the action to be taken by Congress upon them, as well as the uncertainty as to the disposition to be made of the demands of employees for wage increases prompt the western carriers to ask for a postponement. A further consideration moving them to make this request, he said, is that by the early part of 1918 when the above uncertainties will probably have been cleared up, the carriers will be in a position to submit figures covering operations for the entire year 1917 and showing the extent to which the maintenance of road and equipment has been deferred.

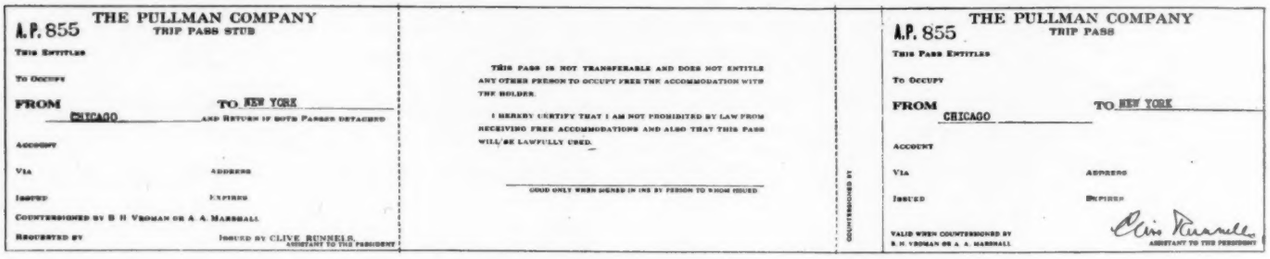
Legislation

The Senate and House judiciary committees both held hearings on December 6 on the resolutions introduced at the last session of Congress at the request of the railroads to suspend until January 1, 1919, the provisions of Section 10 of the Clayton anti-trust law applying to the purchase of materials. These provisions have already been suspended twice since the law was passed. The Senate committee voted to recommend the passage of the resolution with an amendment providing that the postponement shall apply only to existing companies, and it was passed by the Senate on December 7. Representative Sabath, on December 5, introduced a joint resolution. H. J. Res. 172, providing for the taking over by the government during the period of the war of the railways and coal mines. The resolution was referred to the Committee on Interstate and Foreign Commerce.

The Best Operating Man.—The Southern Pacific red cap porter who can carry three suitcases through a revolving door.—*S. P. Bulletin.*

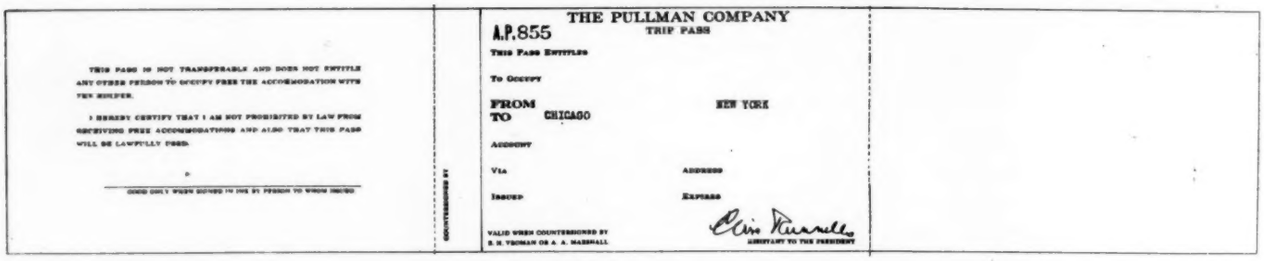
A PATENTED PASS FORM

What is believed to be the only patented pass form now in use was recently devised by Charles S. Sweet, Jr., chief clerk in the president's office of the Pullman Company, Chicago. The patented feature, which is applicable to round trip passes only, provides for a uniform wording on the going and return coupons of the pass, with the result that the only difference between the two coupons is that the positions of the starting and destination points are reversed with reference to the prepositions used to indicate the extent of the trips authorized. To illustrate, if the going portion of the pass reads "from Chicago to New York" the return portion reads "from New York to Chicago," and not "to Chicago from New York." Consequently, on every pass coupon presented to a conductor, the starting point of the train is the first entry and is preceded by the preposition "from," while the destination of the train is the second entry, and follows the preposition "to."


A.P. 855
THE PULLMAN COMPANY
TRIP PASS STUB
THIS ENTITLES
TO OCCUPY
FROM CHICAGO TO NEW YORK
AND RETURN IF BOTH PARTS DETACHED
ACCOUNT
VIA
ADDRESS
ISSUED
EXPIRES
COUNTERSIGNED BY B. H. VROOMAN OR A. A. MARSHALL
REQUESTED BY
ISSUED BY CLIVE RUNNELS
ASSISTANT TO THE PRESIDENT
THIS PASS IS NOT TRANSFERABLE AND DOES NOT ENTITLE ANY OTHER PERSON TO OCCUPY FREE THE ACCOMMODATION WITH THE HOLDER.
I HEREBY CERTIFY THAT I AM NOT PROHIBITED BY LAW FROM RECEIVING FREE ACCOMMODATIONS AND ALSO THAT THIS PASS WILL BE LAWFULLY USED.
GOOD ONLY WHEN SIGNED IN INK BY PERSON TO WHOM ISSUED
COUNTERSIGNED BY
A.P. 855
THE PULLMAN COMPANY
TRIP PASS
THIS PASS ENTITLES
TO OCCUPY
FROM CHICAGO TO NEW YORK
ACCOUNT
VIA
ADDRESS
ISSUED
EXPIRES
VALID WHEN COUNTERSIGNED BY B. H. VROOMAN OR A. A. MARSHALL
ASSISTANT TO THE PRESIDENT

Top View of Pass Form

The pass is in triplicate-fold form so that the stub and two coupons may all be filled in at one time. The marked simplicity of the form not only reduces to a minimum the chance of error in collection, but saves clerical expense necessitated when the wrong coupon is lifted because of the unusual wording of the printed matter on the pass or the color of the coupons, conserves time lost in filling out more complex forms; reduces the chance of error in issuance; and relieves conductors of the duty of filling in forms, obtaining passengers' signatures when but one coupon for the going and return trip is provided, and performing other essentially clerical work which should properly be done in the pass department. The pass has the additional advantage of being valid with but one countersignature, instead of two as required by some companies. It is now being used by the Pullman Company, the Chicago, St. Paul, Minneapolis & Omaha and the Minneapolis, St. Paul & Sault Ste. Marie.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Bottom View of Pass Form

Railways and Aerial Attacks.—On the whole, railways are singularly immune from aerial bombs, says Major Redway, the military critic of the London Globe, due to the fact that correct aim is practically impossible from aircraft, while even a four-track road offers a very narrow target to an aeroplane at a height of anything between 2 and 4 miles.

Timber Shed Construction

Snow Shed Construction in the Cascades

The Great Northern Has Added 17,360 Ft. of New Protection, 6.7 Miles of Line Out of 9 Now Under Cover

DURING 1916 the Great Northern built 14,560 ft. of snow sheds, and 281 ft. of concrete arch, and drove 2,519 ft. of tunnels in the Cascade mountains, to extend the protection against the snow slides prevailing in this territory during the late winter and spring months. Added to the work previously done the total length of snow sheds or tunnels built for this purpose in this vicinity is now 8.4 miles. Of this total 6.4 miles is west of the Cascade tunnel and, adding to this the length of the spiral tunnel at Martin creek, a total of 6.7 miles of track is now under cover in a distance of 9 miles. The longest continuous section of snow shed in this distance is 9,790 ft.

The construction of the snow sheds has extended over a number of years, previous work having been described in the *Railway Age Gazette* of January 13, 1911, and April 17, 1914. The snow slides on the west slope of the Cascade mountains are the result of the extremely heavy snow fall of this region, which has totaled as much as 55 ft. in a single winter and the Chinook winds which cause sudden thaws of the heavy snow beds. In recent years the more severe troubles have occurred in cycles of three years; thus the early months of 1907, 1910, 1913 and 1916 caused relatively more trouble than the corresponding periods of other years. Naturally the protection work has been most active in the construction seasons following these bad winters.

The initial protection was provided at situations where the slides had actually occurred, while later work comprised the extension of these sheds over other portions of the track subsequently suffering from slides as well as the repair of portions built previously. As the result of this policy snow sheds have been gradually extended over larger proportions of the tracks within the limits of snow slide action.

Three Types of Sheds Were Tried

The early snow sheds were all of timber construction, but in 1910 and 1911 a total of 2,462 ft. of double track reinforced concrete sheds was constructed. This type has not been used in subsequent work because of its expense. In 1913, 14,594 ft. of snow sheds was built, of which 10,094 ft. was of all-timber design and 4,500 ft. was of a composite design, with a timber roof over the tracks and a retaining wall of plain or reinforced concrete on the uphill side to take the place of the extensive timber work required in that position in the all-timber design. In 1916, when a total of 14,560 ft. of sheds was built, 12,309 ft. was of the all-timber design, while only 1,970 ft. was of the combination type. Besides these a total of 281 ft. consisted of reinforced concrete arches serving as extensions for three tunnels built for protection purposes.

Thus it is seen that there has been an almost complete return to the original form of construction. The prime reason for this is the high cost of reinforced concrete as compared with timber at a point located in the heart of the Douglas fir region. The investment in concrete snow sheds can be justified only if providing for the double track which must unquestionably be built before the life of reinforced concrete construction would be completed. At the same time it has not been deemed advisable to go to as large an investment as the reinforced concrete sheds would require, because of the degree to which it would commit the railway to the present location of the line. Also the old timber snow sheds can be built in less time than either the all-concrete or the combination sheds, a factor that was of no little importance in planning the completion of the construction program in the short working season.

Where the Sheds Are Located

As stated previously the bulk of the snow shed construction has been west of the Cascade tunnel. The location of the line between the tunnel and Scenic has been described previously in detail and is shown in the map. For this entire distance the line occupies a mountain side that has been swept almost bare by repeated slides. Between Windy Point and Scenic the two higher legs of a double loop are located

on benches in the same slope, one above the other so that the line is twice exposed to the same slide. East of the summit tunnel until last season very little snow shed construction was done, only 2,701 ft. of protection having been built, and this was scattered in sections not exceeding 500 ft. in length over the 33 miles between the east portal of the tunnel and Leavenworth.

West of the summit the work for 1916 consisted partially in the repair of old sheds but primarily in the construction of additional protection. The repair work was entirely between Tye and Embro, where 1,970 ft. of combination sheds and 526 ft. of all-timber sheds were constructed to replace old timber sheds built at different times between 1907 and 1915. West of Embro the work consisted entirely of additional timber sheds and two tunnels driven through shoulders in the mountain side to eliminate dangerous sections of track skirting the face. East of the summit, 7,358 ft. of new timber protection was added to the 2,701 ft. previously built, but as this was scattered over 33 miles of line it does not give the spectacular effect of the work on the west slope.

Design

The design of the timber sheds differs but little from that developed in the past, through years of continued observation of the effect of the snow slides. The structural details of the snow sheds were discussed in detail in the article appearing in the *Railway Age Gazette* of April 17, 1914. The structure serves essentially as a chute for conducting the masses of snow, ice and debris from the hillside above the track to the slope below. It must serve to resist the impact of a rapidly moving mass that remains on the roof only momentarily and it must be able to carry the dead weight of a slow-traveling bank of snow that may concentrate on the roof and remain there until the summer sun melts it. Of great importance in the design is the resistance to the sliding action, which in the all-timber sheds necessitates the use of ample sway bracing and a set of batter posts on the down hill side, acting in conjunction with knee braces in the openings over the tracks. In the combination shed the friction is resisted by tying the roof timbers to the top of the retaining wall on the upper side.

This feature was improved in the design used in the last work. Resistance to sliding was provided in the earlier design by a row of dowels passing through the roof timbers and embedded in the top of the wall. This was replaced in the 1916 design by an improved connection, which is shown in one of the drawings. The 16-in. deck timbers are notched on the under side to engage the upstanding leg of a 4-in. by 5-in. T-bar securely fastened to the masonry bearing. To the upper sides of these timbers are attached ⅞-in. by 12-in. plates, extending longitudinally for the entire length of the shed. At intervals of 5 ft. along these plates cast-iron lugs are secured which serve as stirrups to receive 1½-in. bolts passed through a parapet at the rear of the retaining wall. This parapet is equipped with a 6-in. channel to take the bearing of the bolts and is reinforced adequately to resist the horizontal thrust.

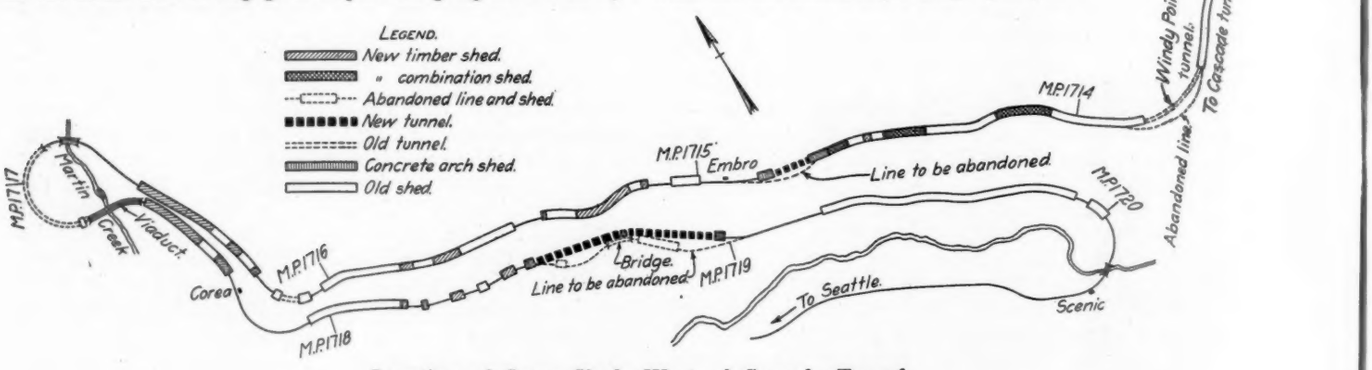
To form an effective chute for the snow the shed construction must be extended up the hill until the plane of the new roof intersects the mountain slope. If the slope is steep this is accomplished readily, but when it is flat the wide extension of the structure required in the all-timber design entails the use of large quantities of lumber. The combination shed overcomes this by introducing the retaining wall of either mass or reinforced concrete, the space behind the wall being filled to the desired slope with earth.

One feature requiring special treatment is the drainage of the mountain side to carry away the water from the melting snows. Where the discharge is small this can be accomplished readily in the all-timber design by building a flume on the roof of the shed, but the demands of permanent construction in keeping with the design of the combination sheds require something more substantial. One solution is the use of a concrete box culvert passing underneath the shed as shown in one of the drawings.

Large Amount of Lumber Required

Some idea of the magnitude of the project can be obtained from the fact that 37,550,000 ft. b.m. of lumber was required to complete last season's work. Of this amount 18,800,000 ft. b.m. was used for the timber sheds on the east slope, while 18,255,000 was used on the west slope. Of the latter 16,128,000 was in the all-timber sheds and 2,127,000 in the combination sheds.

The progress in the shed construction on the west slope was about 24 track feet per day, which, with an average of 2,000 ft. b.m. of lumber per track foot of shed was equal to a daily consumption of 48,000 ft. b.m. of lumber. The site of the work did not afford any storage space, as all lumber received from the mills had to be sorted in a yard at Goldbar, 40 miles west. On the east slope the situation was much more favorable as a storage yard could be located at Merritt, situated about centrally in the construction territory. The concentration of lumber at these two storage points was commenced some time before the construction started in order

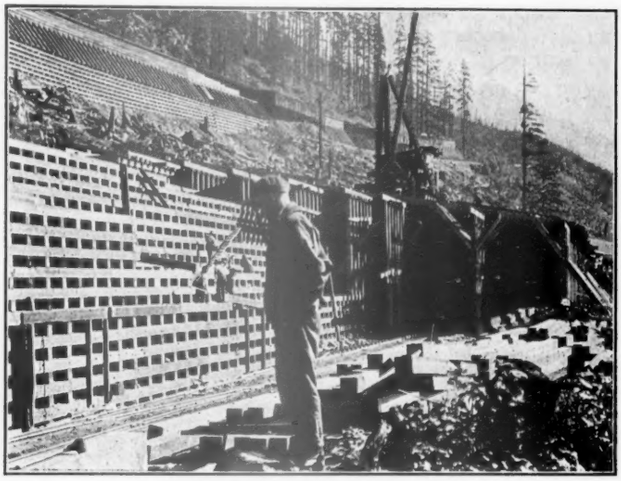


Location of Snow Sheds West of Cascade Tunnel

to insure a supply that would preclude any delays to the work.

From the storage yards the cars were loaded with pieces substantially in the quantity and order used daily in the construction of the sheds, and as the erection crews were working simultaneously at a number of sheds and had to be served almost constantly, a large amount of work train service was required. On the west slope this was equal to an average of four work trains daily in addition to a train supplying concrete materials. About 1,000 cars of sand and gravel were required for the concrete work, and about 2,500 cars of timber.

Retaining Walls for Combination Sheds



Snow Sheds on Two Levels

All of the work was done by contract. The railroads furnished the lumber and paid the contractors on the basis of the amount of lumber erected. The railroad engineering force made up a complete bill of all lumber, showing the actual feet b.m. of all the lumber placed as well as the commercial feet b.m. delivered. This billing was made up by the inspector as fast as the material was erected or was secured by means of a survey of the completed work.

West of the summit about 200 men were employed on the timber sheds, 130 on the combination sheds, 200 on the lower tunnels and 30 on the upper tunnel, just east of Embro station. The timber was erected by stiff leg derricks mounted on skids on the roof of the completed shed, so that they could be moved forward as the work progressed. Only a small amount of framing was required and this was done on the ground just previous to erection. Holes were drilled with power-driven tools.

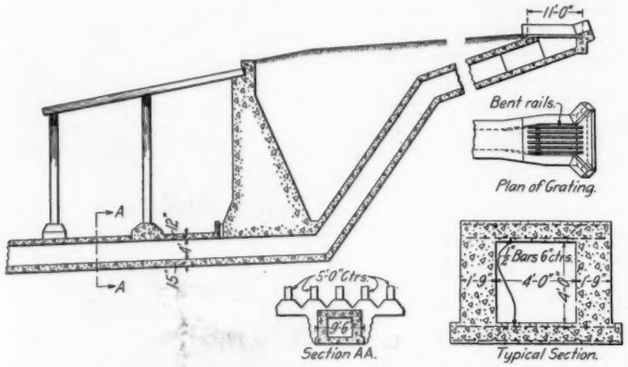
Concrete Work

The plant for the construction of the concrete walls for the combination sheds is shown in one of the photographs. It consisted of two bins, one for sand and one for gravel, standing on a framework of sufficient height so that a mixer receiving materials by gravity from the bottoms of the bins

Sheds on Two Levels Near Martin Creek Loop

could discharge concrete directly into cars standing on a track well above the top of the wall. These bins were filled from cars by a clam-shell bucket hoisted by a stiff-leg derrick standing on a platform spanning the main track. The cement was elevated from a storehouse alongside the track by means of a chain conveyor.

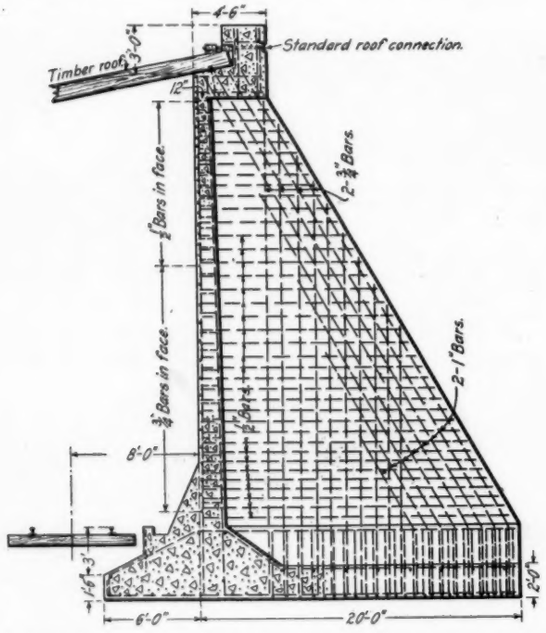
Concrete was delivered to the forms in small narrow-gage dump cars operated on a trestle supported over the wall by frame bents that were placed astride of the forms. The cars were moved back and forth by a hoisting engine and cables. The location of the plant was generally made central with



A Culvert Passing Under the Snow Shed

respect to the length of the shed so that the concrete cars moved both ways from the mixer, thus reducing the length of haul to a minimum.

The forms for the wall were made in sections that could be taken down and re-used repeatedly. To facilitate the moving of the forms a gantry was built to travel on the trestle on two rails laid as far apart as possible so that the

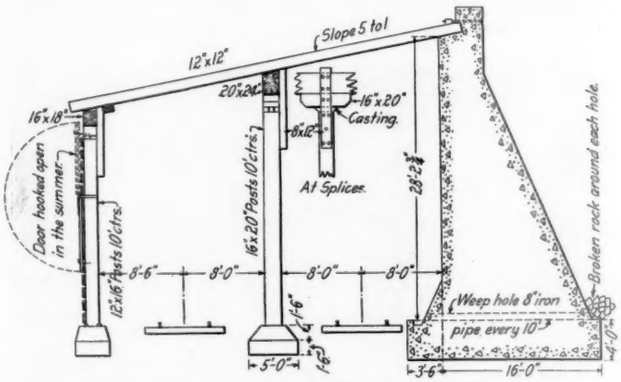


Reinforced Concrete Wall Used with Combination Sheds

concrete cars could pass underneath the gantry without interference.

The Tunnel Work

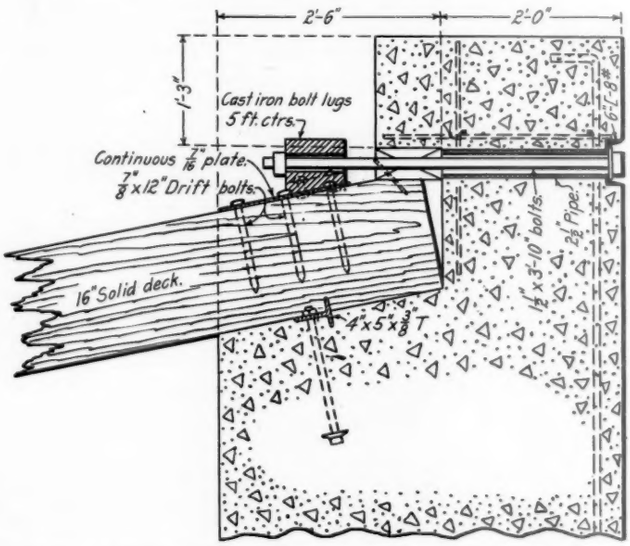
Between Corea and Scenic on the lower leg of the loop 2,057 ft. of tunnel was driven through two shoulders in the hill, thereby eliminating some crooked alinement and a viaduct over a gulley so situated as to constitute a serious hazard. There are really two tunnels, one each side of the gulley under the bridge, there being a gap of 68 ft. in the rock, which was closed by building a single track timber shed. The tunnels were built for single track, and being



Typical Cross-Section of the Combination Shed

only partially lined with timber, can be enlarged readily to provide for double tracks during any summer season by operating trains around the old track since this involves no hazard in the summer months.

The tunnel work was conducted from six headings, one from each portal, two from the gap at the gulley and two from an adit driven from the face of the hill. Several tunneling methods were used. One method was to drive a bottom heading to a full width and a height of 10 ft. and then



Details of Roof Anchorage Used on the Combination Shed

stope down the full section in four layers, two with 6-ft. holes and two with 4-ft. holes. Another method was to drive a top heading to the full arch width and later shoot down the bench. A steam-operated Marion 40 shovel was used to take out the muck, loading 4-cu. yd. Western air dump cars running on a 3-ft. 6-in. gage track. Lyner water drills were used for the heading work with jap drills for the benches. The air was supplied by two air compressors, one furnishing 1,300 cu. ft. and the other 1,700 cu. ft. of free air per minute. Steam was supplied by three boilers fired with fuel oil.

The tunnel on the upper line near Embro is 462 ft. long and has 193 ft. of arch construction at the west end and 40

ft. at the east end. The tunneling was done almost entirely by hand. A top full arch heading was driven, timbering as the work progressed, the bench being shot down later in two lifts. Drilling was all done by hand except for a small amount done with air supplied from a small compressor operated by steam from the boiler of the dinky locomotive. The muck was loaded by hand into small cars hauled by horses. For the heading 6-ft. holes were drilled that were sprung two or three times with 40-per cent. dynamite, this being also used for firing the holes.

All of the snow shed work was conducted under the general direction of A. H. Hogeland, chief engineer of the Great

Interior View of the Timber Sheds

Northern, and O. S. Bowen, principal assistant engineer at Seattle. I. C. Otis was resident engineer in charge of the work west of the Cascade tunnel and G. A. Hensel was resident engineer east of the summit. The contractor for the work east of the summit was W. J. Hoy & Company, St. Paul, Minn., while west of the summit, Grant Smith & Co., of Spokane, Wash., had the contract for all of the timber sheds and the lower tunnel, while Henry & McFee, of Seattle, Wash., had the contract for the combination snow sheds and the upper tunnel.

ENGLAND'S LIMITED MAIL IN 1860.—A very interesting story is told in the September issue of the London & North-Western Railway Gazette by George P. Neele, the former superintendent, who is now in his 92nd year. The article in question relates to the Limited Mail and traffic by the West Coast route to and from Scotland and says that the train in question took its name from the fact that while furnished with a complete set of mail cars, fitted with apparatus for picking up and depositing letter bags en route, it was limited in the passenger accommodation to three cars only—one for Perth, one for Glasgow and one for Edinburgh. These cars were restricted to first- and second-class passengers holding single journey tickets. Those with return tickets were not, until August, 1860, allowed to use the Limited Mail. Directors with gold passes were even excluded, and any officers of the company who found it necessary to journey thereby had to book like ordinary passengers. Traffic conditions often made it necessary for appeals to be made to the Postmaster-General for permission to attach a fourth passenger car, and this concession was always readily granted on the condition that the punctuality of the train was not impaired. In 1864, however, the Post Office consented to the permament addition of the fourth coach.

ELECTRIC TRUCKS IN STOREHOUSE SERVICE

Power trucks for hauling materials are installed to save manual effort and if the labor saved is sufficient to justify the investment in the equipment the results are considered satisfactory. However, when the installation of the trucks not only accomplishes this, but leads to a revision of other operations in the plant that bring about material economies, entirely aside from the mere hauling of material, the results become especially gratifying. This has been the case with the use of an electric storage battery truck in the general stores department of the New York Central at Collinwood (Cleveland) Ohio. It must be said in justice that the benefits gained have resulted not alone from the merits of the truck used but were derived in a measure from the skill with which the storehouse methods have been revised to secure the maximum benefit from the installation.

The truck used at Collinwood is an Elwell-Parker electric truck of the self-loading platform type; that is, the platform of the truck is supported on rocking links attached to an electric motor through worm gearing so that the platform can be raised or lowered about four inches while carrying a load of two tons. This function is utilized to good advantage in picking up loads placed on trays or skids and is one of the most important features in developing operating economies with the use of the truck.

To keep the truck moving has been the prime consideration in the Collinwood installation and in working out the details of operation to accomplish this in the largest measure, economies have been secured in the handling of the stores

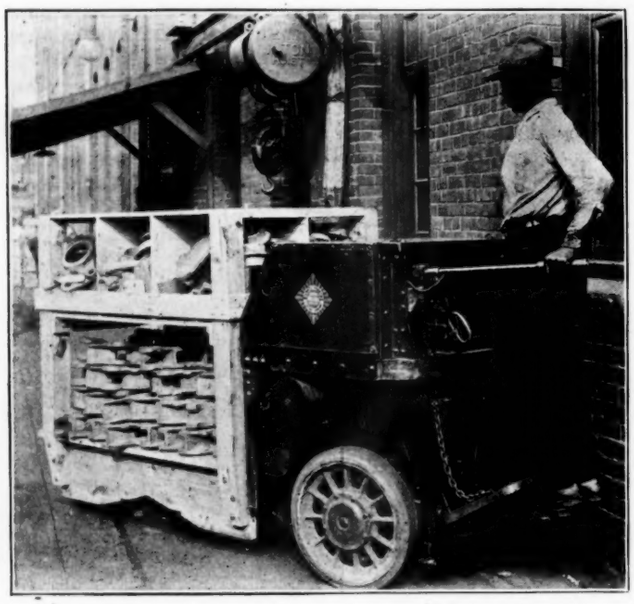
Truck Carrying Basket of Packages Mounted on a Tray

materials which are entirely supplementary to the savings in labor effected in the moving of the articles from place to place. Specifically the plan provides that the truck is not standing idle during the time of loading and unloading, since a system of trays or platforms is provided on which the loading is done while the truck is otherwise engaged. The load ready, the truck comes up, its platform is rolled under the tray and then elevated to lift the tray clear of the floor. The load can then be moved to any point and the tray again lowered to a bearing on the floor. This system is by no means new, but its adaptation to the conditions imposed by storehouse operation has led to the introduction of a number of new features.

The storehouse problem includes the receipt of materials from the manufacturer or dealer in cars, the delivery of such portions of these materials to the shop as require finishing or assembling, the return of the completed or assembled

parts to the house for storage and lastly the loading of the materials from the storehouse onto cars for shipment to the division storehouses or other outlying points. Heretofore this has involved the loading of hand trucks, their manual transportation to the point of delivery and their subsequent unloading. This system has been modified materially under the new arrangement.

Suppose a car of miscellaneous material is received from the manufacturer. The electric truck delivers trays to the car where they are loaded while the truck is engaged in other service. When the loads are ready, the truck returns and carries the trays into the house, where they are unloaded for storage or are delivered to one of the shops. For instance, a tray of new air hose is taken to the fitting shop where the truck picks up another tray loaded with hose to which the fittings have been applied; or it goes to the foundry for a load of castings which are left at a lathe in the machine shop where a second tray is picked up which the lathe operator has loaded with turned castings as fast as he finished them. In these cases the loading and unloading is eliminated entirely and the machine operator or fitter ex-



Using a Tiered Tray to Transport Castings

pends no more labor in handling the pieces than if they had been placed on the floor.

The loading of materials of various kinds into cars is one of the important features of storehouse operation, and while the use of the trays for delivering supplies to the cars releases the truck immediately for other uses, there still remained the work of unloading the trays. However, even this operation has been eliminated in a measure, since another truck of the elevating platform type has been placed in service at Elkhart, Ind., where one of the most important division storehouses is located. Instead of unloading the trays in cars destined for Elkhart, they are left in the cars with their loads so that the truck at Elkhart can pick them up again without the trouble of reloading.

Trays Built in Tiers

To put this plan on a really practicable basis and to insure the loading of the car to as near its capacity as possible, it has been necessary to use something more than the simple platform tray. The needs of this situation led to the development of trays built up in tiers, as shown in the photographs. One of these shows a tray of three tiers, the second one being divided into six compartments. This has been of particular convenience in the filling of requisitions for miscellaneous articles, since the various sizes and styles can readily be kept separate and transported intact between storehouses having elevating platform trucks in operation.

The tiered trays when removed by the consignee are taken directly to the place where the particular material is stored; this has led to the elimination of regular fixed shelving to a certain extent. For example, brass fittings are made at the brass foundry at Collinwood. The practice has been to transport brass for use in the locomotive shop at Elkhart to the Elkhart storehouse. The first development of tiered trays was to load the brass at the foundry at Collinwood directly into the pockets in the tray and move the tray, entire, with the contents intact, direct to the storehouse at Elkhart. At that point the various pieces of brass were taken from the pockets in the tray and placed on shelves. It is now expected to utilize this tiered tray by simply lowering it into place at the brass section at Elkhart and avoid the handling of the brass from the tray into the stationary pockets. As the trays will be nearly empty before a new lot is received on a subsequent order, the few pieces remaining in the first tray will be tossed into the pockets containing the new shipment. This feature not only eliminates the cost of one entire handling operation but it insures (where it can be worked out) the turning over of the old material first, a very essential feature in storekeeping practice since it avoids the placing of new material upon the old.

Another development in this direction is the use of metal baskets for the handling of package materials. Much of this material such as stationery is delivered from upper floors of the storehouse to the shipping floor by means of a chute, the baskets being placed on trays at the lower end of the chute to receive them.

Another class of work in which the truck has been a big help is in the handling of heavy articles, such as locomotive side rods, air compressors, etc. The gain here has been principally in the transportation of the articles since the operation of the two-wheel trucks formerly used for this heavy service frequently entailed the use of two to four men in place of the one man who now operates the truck. Here again the use of the trays is a help since they can be left within the operating radius of a crane without holding the truck until the crane is ready to remove or place the load.

The truck is 36 in. wide and 104 in. long. It steers on all four wheels and turns on a 7-ft. radius. The load pick-up platform is 26 in. wide by 54 in. long and is used with trays 36 in. by 54 in. The propelling and elevating motors both receive current from the same battery carried in an enclosed compartment on the deck over 2½-in. by 3½-in. drive wheels. The controller is immediately behind the battery and the controller drum always returns to off-position, when the handle is released. The handle may also be removed from the truck when not in use. A special interlocked circuit-breaker and controller makes it impossible to start the truck unless the driver is standing on the truck in position to operate. The brake is applied by lifting one foot. Thus if the truck is traveling at full speed and the operator jumps off the truck it will stop within its length.

The brake will hold a loaded truck on an incline and speed may be picked up on an incline with the brake partially set, making it safe to handle on grades. The truck is steered by an adjustable handle provided with a sole-leather grip and an electric bell push button in the end.

The truck is normally operated for a 10-hour day, but 12 or 13-hour service is not uncommon. The charging is done each night although more recently it has been found practicable to do the charging only on alternate nights. An automatic rheostat, manufactured by the Electric Products Company of Cleveland, has been installed for this purpose. After testing the batteries of the truck, the rheostat is set for

the required charge and loaded up and will shut off automatically when the truck has been charged.

The installation of the truck and the adjustment of operating methods, through which the economies secured were made possible, have been developed under the direction of the stores' department of the New York Central lines west of Buffalo.

SUGGESTIONS FOR FIRE PROTECTION OF RAILROAD PROPERTIES

For the information of the railroads the Railroads' War Board has addressed to them a bulletin containing the following recommendations of the Railway Fire Protection Association, which is composed of officers having charge of fire protection and insurance matters of the railroads:

"(1) Wherever practicable the terminals should be enclosed in close board fences, at least six feet high with at least three strands of barbed wire above and projecting outward at an angle so as to prevent scaling the fence. Some property can be fenced in whole or in part while on others it may not be practicable. There should be as few entrances as possible, preferably not more than one to each pier or unit. In the case of some buildings, such as elevators and power houses, it may be necessary to also erect individual fences.

"(2) The buildings and premises should be effectively lighted so as to make it possible to detect any one approaching from any direction. Searchlights are not generally recommended but rather devices which will flood or distribute the light.

"(3) There should be sufficient watchmen, active, honest and intelligent night men, equipped with small fire extinguishers of the one-quart type and portable clocks, to properly patrol the property. There should also be a chief night watchman or roundsman to generally check up the other men. He should also be equipped with extinguisher and clock. In case of an effective central registering system it will be unnecessary for these men to carry clocks. According to the individual properties these watchmen may be confined to the inside or may be needed both inside and outside, but in the latter case separate men should be detailed.

"(4) The watchmen should be drilled in the handling of fire protection and should be required when they come on for night duty to lay out hose and have other protection ready for instant use in case of fire. Fire alarm signal system should be tested every night.

"(5) Telephones should be installed at entrances and other points convenient for watchmen so that immediate communication can be had to all parts of the terminals. This will do away with the necessity of identification cards for parties applying for entrance. Record of parties passed should be kept.

"(6) At each entrance there should be an armed guard with government authority for identification and search of persons, entering and leaving.

"(7) A patrol on the water front by a power boat is very necessary and probably one of the best safeguards that can be adopted, but will not be advisable in all cases. A boat not less than twenty feet in length, preferably longer, equipped with searchlight and manned by at least two armed guards, should be used.

"(8) The most important protection that can be given is an efficient military guard thrown completely around property, guarding all approaches both from the water and land.

"(9) No boats should be allowed to tie up to wharves and piers at night other than those regularly docked.

"(10) Rigid instructions should be issued and enforced to prohibit smoking on or around any water front property.

"(11) It is suggested that the arrangement at terminals be subject to the supervision and constant inspection of the insurance or fire prevention representatives of the roads."

WAR TAXES PUSH SEPTEMBER INCOME BELOW 1915 LEVEL

War taxes, which finally have taken their place among other soaring costs of railway operation, were responsible for one of the most disastrous months of the year for railway net income in September. Only in February, according to comparisons by the Bureau of Railway News & Statistics, Chicago, covering the entire operated mileage, was the loss in net income greater than in the latest month reported. Though the sixth month this year to show a loss in net income as compared with last year, September was the first month to show a loss as compared with two years ago. The month's net income was $9,500,000 under two years ago, though the month's gross was nearly $75,000,000 greater than in September, 1915.

For February, the Bureau's comparisons show a loss of $23,000,000 in net income after a gain of nearly $5,000,000 in gross. In September, after a gain in gross of nearly $34,000,000, there was a loss in net income of $20,000,000, within $3,000,000 of the loss suffered in February, although the gain in traffic was nearly $30,000,000 greater and the almost impossible winter operating conditions of February were replaced by summer. Of the former month the Commission in rejecting the plea for a 15 per cent increase said: "If the unfavorable results of February had continued our conclusions must have been different." The unfavorable results of September were due entirely to added costs of operation arising from increased wages and prices, congestion of railway facilities and above all to the totally abnormal leap in taxes.

Whereas taxes for the entire nine months have risen $33,884,000 the increase for September alone was almost $12,000,000,—nearly four times as great as the largest previous monthly increase in history. Total taxes for the month reached above $26,000,000, compared with $17,936,000 in August, the previous record. Taxes in September were at the rate of over $316,000,000 per year, against the high record of $180,000,000 for the year ending June 30, 1917. The marked increase is attributable to the fact that the roads in September began to figure war taxes. The September total is somewhat too high, probably, since one or two roads have charged to that month the estimated war taxes accrued for the year to the end of that month. Yet even before taxes were deducted net revenues for September were more than $8,000,000 below last year despite a gain in gross of $34,000,000.

How the progressive aggravation of railway operating conditions has played havoc with all improvement in traffic is best shown by the following statement giving the increases or decreases compared with last year in the various items, by months:

	Gross Revenue	Expenses	Net Revenue	Taxes	Net Income
January ..	$43,559,000	$34,489,000	$9,070,000	$1,817,000	$7,253,000
February ..	4,912,000	26,307,000	*21,395,000	1,822,000	*23,217,000
March ...	30,519,000	37,996,000	*7,477,000	2,360,000	*9,837,000
April	41,498,000	40,509,000	989,000	2,773,000	*1,784,000
May	47,377,000	43,672,000	3,705,000	2,609,000	1,096,000
June	52,768,000	41,781,000	10,927,000	3,329,000	7,598,000
July	47,200,000	44,203,000	2,997,000	3,621,000	*624,000
August ...	39,891,000	44,857,000	*4,966,000	3,585,000	*8,551,000
September..	33,987,000	42,031,000	*9,044,000	11,968,000	*20,012,000
Total...	$341,651,000	$355,845,000	*$14,194,000	$33,884,000	*$48,078,000

*Decrease.

In the last line, totalling the accumulated changes of the nine months, is told the disastrous part played by soaring expenses and taxes in current railway operations. After rendering an additional service to the country measured by a gain of over $340,000,000 in gross revenues the railways had

$14,000,000 less remaining after meeting their added costs of material and labor. After the expansion of almost $34,000,000 in taxes had been added to this burden they were actually worse off by $48,000,000 than when they rendered a third-billion rollars less service.

MAKE EVERY FREIGHT CAR DO ITS BIT

By O. O. Carr.

Much has been said and done with reference to the distribution of freight cars for loading with freight for territories from which they can be loaded back again. While many conditions interfere with this plan, everything should be done to develop ways to overcome these handicaps wherever possible in order to take up the slack in distribution and conserve the car supply. A combination drop bottom box and coal car or a combination drop bottom stock and coal car will do much to overcome part of this difficulty on roads which have a number of coal mines located on their lines, as such cars can be loaded with coal to territories where they can be loaded in the opposite direction with another class of freight. The saving in empty car days and in the expense of hauling empty cars in the direction of heavy traffic, and the decrease in the cost of owning and maintaining the cars of the two classes, will show some interesting figures.

Aside from the extensive distribution of gondola cars to mines, flat cars to lumber mills, and box cars to grain elevators, the cars which are distributed under the direct supervision of the division car distributor represent only about 20 per cent of the number loaded on a division each day. A good car distributor, fully posted concerning the kind of freight loaded at each station on his division and on connecting divisions, will, as far as possible, select cars to fill orders in such a way as to supply a car that will also serve the second station's loading and thereby save the car from being moved out of that station empty.

Cars that are made empty at stations or those supplied from the yards are ordinarily loaded by the agents as best suits their convenience, which is perfectly natural since they are not familiar with the loading other stations have for cars. One has to distribute cars and to see the number hauled out of local stations empty on account of their being of a wrong class or in unfit condition to serve their loading to realize the extent to which this waste takes place. To better illustrate this slack movement, consider a few stations with the kind of cars required and the approximate destinations or territories loaded to as follows:

Stoveton—Loads stoves for stations southwest. Rough-freight box cars or those with poor-linings required.

Flourboro—Loads flour for Southport export, also local stations in Southern states. Requires extra good box cars.

Woodbury—Loads cord wood and mine props for local stations on the division. Rough-freight box, stock or gondola cars required.

Coalville—Loads coal for points north—gondola cars.

Grainfield—Loads grain for points south—good box cars.

Nurseryville—Loads nursery stock for points on foreign lines west—large box cars.

Autobon—Loads autos for various points west—auto and furniture cars.

A check of the large freight loading and distributing points where from 50 to 75 cars of merchandise and other freight are loaded each day into empties supplied from cars made empty or reshipped at the station and empties from the terminal yard will show many cases such as noted below:

A good grain car will be loaded to Stoveton when one with poor linings would have served the purpose as well, and would also have guaranteed reloading at destination.

A stock car is loaded with sewer pipe to Flourboro when a good box suitable for flour loading should have been selected.

A furniture car is loaded to Woodbury when a car of another class and in poor condition would have served the purpose.

Box cars are loaded with iron rails for the coal mines at Coalville when gondola cars should have been loaded.

A small box car is loaded to Autobon when a large car or an automobile car should have been used.

While each of the 75 cars would not be loaded wrong, there would not be as many loaded improperly if agents had something to show what the needs of all stations are. A very simple way to enable them to load cars to the best interests of the company would be to print a booklet showing the name of every local way station on the system, the freight each loads regularly, the kind of cars needed and the approximate destinations of the freight and to place these booklets in the hands of all agents, yardmasters, local conductors and shipping clerks of large industries, thereby giving them the opportunity of making a selection of cars as between stations when loading them. If cars made empty at each station received this consideration, it would be possible to work out a scheme to keep a car in continuous loading for weeks without a single empty move. The plan would automatically make a silent system car distributor of every agent, yardmaster and local conductor on the railroad.

This booklet could be revised to cover shipping seasons or supplements could be issued to make it a reliable working guide. Local stations which do not have regular daily loadings for cars could be listed as having use for the kind of cars their next station neighbor has daily use for.

In order to secure as close adherence to the plan as possible, receiving agents could make a report showing the cars they received loaded, which had to be hauled out empty on account of having no outbound loading for cars of their class, or in the condition of the cars loaded to them. Inquiry could then be made of the loading points to ascertain whether proper consideration had been given to the selection of the cars.

Carrying out this same idea in another way, roads which have a large number of coal mines on their lines should if possible prepare a list of all coal dealers receiving coal from mines on their road, showing who have bins or unloading conditions under which coal cars with dumping appliances can be handled better and more promptly than flat bottom gondolas and likewise the names of dealers who can use flat bottom cars to better advantage. This list should be placed in the hands of the mine superintendents, who will be glad to cooperate in filling their orders by loading cars that best fit the unloading conditions of their customers, and thereby help conserve the gondola car supply.

Operators of New Zealand Government Railways.—According to a late report of the Minister for Railways, the total earnings of the 2,970 miles of main lines of the New Zealand Government railways amounted to $23,363,142 for the fiscal year ended March 31, 1917, an increase of $1,228,567 over the previous year. During the year the expenditure amounted to $14,243,584, leaving a net profit of $9,119,558, which represents a return of 5.3 per cent on the capital invested in these lines by the Government, which to date amounts to about $190,000,000. There were 14,173,115 passengers carried, as compared with 14,201,506 for the previous year; and 5,826,265 tons of freight were handled, as compared with 5,960,562 tons, with 412,908 tons of live stock, as compared with 410,383 tons. The greater receipts were due to the increased passenger and freight rates charged, since the aggregate business done was less during the 1916-17 period than for 1915-16.

General News Department

A Board of Conciliation at St. Thomas, Ont., has recommended increases of 18 and 20 per cent in the pay of brakemen and baggagemen on the lines of the Michigan Central in Canada.

The Senate passed on December 11 a resolution introduced by Senator Lodge providing for an inquiry by the Senate Committee on Manufactures into the causes for the shortage of sugar and coal.

The Chicago, Burlington & Quincy has granted an increase in pay to employees in its car department, effective December 1. Those paid on a straight hourly basis were granted an advance of two cents an hour and men on piece work were given a 5 per cent increase.

Forty-two submarine chasers and other small government vessels have recently been taken through the New York State Barge Canal from Lake Erie to the Hudson River. These boats were built at western yards and have been moved to New York under their own power.

On the lines of the Southern Pacific in Texas, New Mexico and Arizona orders have been issued that all cattle and other edible animals killed upon the track shall be saved and the meat disposed of to butchers. The pelts of all killed animals must also be saved and sold.

Station employees of the New York, New Haven & Hartford have asked for an increase of 75 cents a day in their pay and for the abolition of all rates based on piece work or tonnage; also the abolition of bonuses, and the adoption of the eight-hour day and a minimum day rate of $2.50.

The Post Office Department is advertising at Hartford, Conn., for bids, to be received until February 1, for running a postal route daily, by motor vehicle, over the highways from Hartford to New York City by way of Waterbury and Danbury, Conn., and White Plains, N. Y. The distance is 105 miles.

According to the New York Tribune, the government of Switzerland has paid $90,000 demurrage charges on a vessel which has been held at an Atlantic port since September waiting for a load of wheat, bought in Chicago before the ship was chartered. This instance is said to be only one of many.

Miss Katherine Stinson, on Tuesday, December 11, made a flight from San Diego, Cal., to San Francisco, 610 miles, in 9 hours, 10 minutes; and without a stop. This distance is about 98 miles greater than that made by Miss Ruth Law, November 19, 1916, from Chicago, Ill., to Hornell, N. Y. Miss Stinson, in crossing the Tehachapi Mountains, rose to a height of about 9,000 ft. above the sea.

The car repair shed of the Baltimore & Ohio at Storrs Station, Cincinnati, Ohio, was destroyed by fire on November 27, together with 21 freight cars, eight of them loaded. The structure was of frame construction, 48 ft. by 445 ft., open on the sides and with three tracks running the length of the shed. The fire was discovered in the vicinity of the lockers where the men kept their tools and working clothes. Estimated loss on structure, cars, tools and supplies, $37,000.

In the Grand Central Terminal, New York City, service flags are now displayed showing the number of employees of the New York Central lines, the New York, New Haven & Hartford, and the Grand Central Terminal who are serving in the army or the navy, a flag for each of these three organizations. The New York Central flag shows the figures 4 9 7 6 (the lines of the figures being composed of small stars), indicating the number of men representing the Central companies; the New Haven's flag reads 1 4 1 2, and the Grand Central Terminal flag 1 0 4.

The Department of Commerce has issued a statement to the effect that through the negligence of live-stock owners food animals valued at $20,000 were killed on the tracks of the Central of Georgia during the first nine months of this year; 1,862 head, including fine dairy cows and beef cattle as well as hogs and sheep. This is equal to one animal for every mile of track; and if that figure can be accepted as a basis for estimating the loss for the entire country, the destruction of food animals on the railway tracks of the United States during the first nine months of this year can be put at $2,760,000, or $3,680,000 for the whole year. The lesson is obvious.

In the despatchers' offices of the New York Central at the Union Station, Albany, N. Y., a complete new equipment of telegraph instruments is being installed; and in connection with this improvement numerous lines are to be equipped with selector bells and lights, so that the office can be called by the selector apparatus. This arrangement, which also is in use at a number of other large offices on the New York Central, provides against tedious delays when there may be only one operator on duty. In whatever part of the office he may happen to be he can be depended on to answer promptly on any wire even though the relay or sounder of that wire is not within his hearing.

Railroads in the southern and western as well as the eastern district show decreases in operating income per mile for the month of October, 1917, as compared with October, 1916, according to a preliminary bulletin for 128 roads issued by the Interstate Commerce Commission. For the 10 months ended with October the southern roads were still ahead of 1916, while the western lines had a decrease. For October the total revenues per mile were $1,601 as compared with $1,429. Expenses increased from $888 to $1,097 and operating income fell from $481 to $407. For 10 months the operating income of all the roads was $3,511 per mile as compared with $3,780 per mile. For the eastern lines is was $5,559 as against $6,441; for the southern lines $3,323 against $3,319, and for the western lines $2,763 against $3,884.

One of the first questions which came to the attention of the Chicago subcommittee of the General Operating Committee of the eastern lines was why approximately 2,000 carloads of live stock are shipped monthly through the Chicago gateway to New York in preference shipments. This condition seemed strange in view of the fact that Chicago facilities for slaughtering are the best in the country. When packers were called into conference for the purpose of determining whether this traffic might not be reduced considerably to relieve the congested districts in the east, it was learned that cattle are shipped to New York City for slaughter to supply the needs of the million of orthodox Jews in that territory. The Jews, it was pointed out, are forbidden by their religion to eat meat which has been slaughtered more than 24 hours before.

Mediation and Conciliation

A controversy between the Baltimore & Ohio and its telegraph operators has been settled through the efforts of the United States Board of Mediation and Conciliation. The settlement provides for a basic eight-hour day and increased pay for overtime. The question of increased rates of pay will be submitted to arbitration.

Patriotic Duty to Reduce Freight Damages

W. J. Jackson, receiver of the Chicago & Eastern Illinois, has sent to employees a letter reminding them that all avoidable waste or damage to property constitutes actual aid to the enemy. He says: "Our loss and damage to freight is running between $15,000 and $20,000 per month. This is a total waste and loss. Much of it can be avoided with only reasonable care. In August last our payments included $1,124, on account of the destruction of products of agriculture; $1,252 for destruction of animal products; $3,600 for the manufactured articles, etc., including a total record of food destruction of nearly $9,000 for this one month, or at the rate of over $100,000 per year. Surely, in fairness to our boys, our families and our country, we can do better than this! Be just a little more careful and try a little harder to avoid losses."

REVENUES AND EXPENSES OF RAILWAYS

NINE MONTHS OF CALENDAR YEAR, 1917

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total (inc. misc.)	Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.					
St. Louis Southwestern	1,754	$9,356,897	$2,178,107	$12,233,231	$1,366,864	$2,264,843	$420,854	$3,594,294	$429,670	$8,096,721	66.19	$4,136,510	$597,629	$3,537,932	$1,277,972
San Antonio and Aransas Pass	732	1,973,786	736,046	2,927,911	551,901	489,453	64,373	1,381,106	125,863	2,606,635	89.03	321,275	135,000	185,615	40,220
Seaboard	3,461	14,560,067	5,256,911	21,939,978	2,435,642	3,632,637	693,963	8,069,038	622,566	15,578,646	71.01	6,361,331	992,354	5,361,024	242,307
Southern	6,983	42,694,771	16,189,709	64,707,808	7,332,255	10,705,602	1,513,632	22,448,502	1,623,085	43,810,403	67.70	20,897,405	2,978,095	17,896,259	1,941,376
Southern in Miss	278	539,558	268,458	890,157	188,905	78,755	20,480	388,048	38,181	714,371	80.25	175,785	90,299	85,305	22,409
Southern Pacific	7,087	70,322,341	24,322,333	103,593,495	9,241,865	13,389,370	1,600,640	36,706,237	2,451,241	64,710,513	62.47	38,882,982	7,404,451	31,451,117	2,431,980
Spokane, Portland & Seattle	554	3,365,883	1,282,391	5,015,181	579,085	401,694	72,368	1,171,837	120,482	2,385,805	47.57	2,629,376	522,990	2,105,742	875,189
Staten Island Rapid Transit Co	24	503,058	547,505	1,154,479	160,059	124,936	9,769	535,685	43,994	874,443	75.74	280,037	69,000	210,951	—103,801
Tennessee Central	292	923,646	309,559	1,321,071	211,391	211,349	43,919	478,748	64,007	1,009,335	76.40	311,736	43,201	268,499	2,170
Terminal R. R. Assn. of St. Louis	36	.....	10,638	2,868,273	349,344	190,876	8,893	876,864	51,165	1,495,333	52.13	1,372,939	301,450	1,071,462	—63,839
Texas & Fort Smith	81	636,554	102,966	810,853	73,061	41,827	25,145	255,939	31,876	423,085	52.18	387,768	66,559	320,606	88,153
Texas & New Orleans	468	3,200,384	1,019,055	4,615,493	421,862	705,926	79,130	1,373,852	129,413	2,811,003	60.90	1,804,490	356,115	1,445,039	742,350
Texas & Pacific	1,946	10,442,277	4,331,060	15,891,190	1,693,937	2,151,620	358,625	6,407,434	520,395	11,216,797	70.59	4,674,393	815,000	3,852,046	661,490
Toledo & Ohio Central	436	5,009,835	502,105	5,875,013	787,390	1,063,368	66,260	2,348,275	97,057	4,378,987	74.54	1,496,027	259,585	1,236,369	335,634
Toledo, Peoria & Western	247	557,195	322,420	952,070	167,664	250,841	21,762	384,256	44,344	868,802	91.25	83,268	69,000	14,268	—36,196
Toledo, St. Louis & Western	455	4,659,131	328,391	5,235,401	802,313	773,794	165,053	1,840,758	87,652	3,665,772	70.02	1,569,630	181,000	1,387,792	—39,080
Trinity & Brazos Valley	369	540,973	102,580	706,185	219,158	292,599	22,672	357,144	68,015	959,589	135.88	—253,404	47,860	—301,284	—82,446
Ulster & Delaware	129	362,010	259,559	790,667	61,915	98,868	16,770	360,445	40,657	581,768	73.58	208,899	36,000	172,998	—26,637
Union Pacific	3,622	39,041,030	9,911,168	54,346,185	6,760,007	6,972,766	1,030,613	15,752,195	1,612,094	32,856,218	60.46	21,489,967	3,842,369	17,644,558	—2,616,164
Union R. R. of Baltimore	8	1,170,386	322,526	1,513,123	76,651	.....	.....	67,836	19,492	163,969	10.84	1,349,154	468,046	881,107	—328,442
Union R. R. of Pennsylvania	35	.....	.....	4,350,104	378,177	1,386,325	2,635	2,251,179	57,851	4,075,449	93.69	274,655	92,012	182,643	—1,071,623
Vicksburg, Shreveport & Pacific	171	910,634	412,858	1,493,401	159,092	267,727	45,646	473,348	50,237	1,009,660	67.61	483,641	110,416	372,828	127,717
Virginian	513	6,390,972	412,758	7,750,505	597,589	1,135,999	52,907	2,077,923	138,442	4,151,613	53.57	3,598,891	367,000	3,231,865	436,635
Wabash	2,519	21,497,448	5,645,742	29,721,580	2,883,142	3,974,773	802,855	12,179,772	681,127	20,667,222	69.54	9,054,358	981,271	8,068,984	—172,359
Washington Southern	36	611,010	815,633	1,839,599	118,872	190,702	13,297	590,284	33,780	962,929	52.34	876,671	128,534	748,113	197,790
Western Maryland	749	8,442,108	824,468	9,938,957	1,109,901	1,924,559	207,363	3,439,613	257,092	7,046,785	70.90	2,892,172	341,000	2,551,172	—409,992
Western Pacific	958	5,837,549	1,091,658	7,256,095	1,157,434	697,447	190,090	2,137,076	212,660	4,471,701	61.63	2,784,394	355,728	2,428,543	455,387
Western Ry. of Alabama	133	671,544	406,827	1,200,208	140,820	237,801	57,436	382,911	40,963	879,907	73.31	320,301	63,341	256,936	61,324
West Jersey & Seashore	359	2,025,142	4,265,330	6,815,935	1,097,699	946,319	102,782	2,807,306	158,581	5,152,405	75.59	1,663,530	371,230	1,292,152	161,866
Wheeling & Lake Erie	512	6,854,011	488,324	8,025,717	1,020,854	1,274,250	78,912	2,815,498	179,398	5,384,325	67.09	2,641,391	408,671	2,232,710	—370,352
Yazoo & Mississippi Valley	1,382	9,647,768	2,346,737	12,712,817	2,265,342	2,134,062	197,095	4,168,726	323,769	9,042,089	71.13	3,670,728	950,000	2,718,233	—11,723
MONTH OF OCTOBER, 1917															
Alabama & Vicksburg	143	$147,277	$63,212	$230,475	$29,100	$28,532	$5,662	$75,572	$6,375	$145,527	63.14	$84,903	$25,000	$59,903	$6,011
Alabama Great Southern	312	461,313	179,288	688,471	49,808	122,483	16,691	208,070	12,444	415,877	60.41	272,594	41,338	231,238	23,478
Arizona Eastern	378	258,835	53,197	337,960	30,439	35,682	2,537	74,577	14,289	162,446	48.07	175,513	26,480	149,001	20,111
Atchison, Topeka & Santa Fe	8,639	9,198,914	2,748,542	12,996,636	1,404,789	2,116,994	204,665	4,062,703	241,191	7,997,563	61.54	4,999,073	893,671	4,100,823	—414,826
Atlanta & West Point	93	96,994	62,653	180,824	12,536	25,402	5,951	58,898	5,064	110,296	61.00	70,528	19,000	51,528	4,880
Atlanta, Birmingham & Atlantic	640	283,035	75,114	385,835	60,864	63,179	13,520	142,207	9,927	289,732	75.09	96,103	15,700	80,345	—12,188
Atlantic & St. Lawrence	167	106,463	24,841	142,385	46,406	37,716	3,627	118,886	5,806	212,441	149.20	—70,056	10,721	—80,777	—46,130
Atlantic Coast Line	4,784	2,392,273	1,016,537	3,661,236	447,520	585,494	60,665	1,391,501	85,428	2,579,163	70.45	1,082,073	225,000	855,982	—26,113
Baltimore & Ohio Chicago Terminal	79	.....	487	163,732	13,943	37,148	883	108,685	7,052	169,719	103.66	—5,987	18,360	—24,347	—36,386
Baltimore, Chesapeake & Atlantic	88	80,035	35,711	122,682	6,425	38,568	1,182	66,558	2,283	115,016	93.75	7,667	2,634	5,032	—13,509
Bangor & Aroostook	632	285,364	87,989	393,185	47,391	54,892	3,484	97,577	12,547	220,540	56.09	172,645	44,750	127,895	—43,360
Bessemer & Lake Erie	208	1,196,556	30,459	1,249,280	158,767	297,913	11,139	392,937	25,909	870,011	69.64	379,269	93,785	285,478	—193,568
Bingham & Garfield	36	311,637	3,871	321,188	25,531	39,147	1,194	45,807	4,505	116,071	36.14	205,117	115,124	89,993	—81,646
Birmingham Southern	44	94,518	2,098	121,782	15,985	32,917	921	55,162	3,823	108,808	89.35	12,974	5,033	7,941	—4,346
Boston & Maine	2,305	3,275,397	1,729,077	5,519,783	654,272	777,574	48,816	2,538,097	124,326	4,163,227	75.42	1,356,555	171,286	1,185,270	—200,493
Buffalo & Susq. R. R. Corporation	253	159,863	5,932	168,619	23,390	47,519	1,722	50,786	7,009	130,427	77.35	38,192	6,000	32,192	2,824
Buffalo, Rochester & Pittsburgh	587	1,310,928	108,580	1,478,739	149,103	387,872	15,342	514,409	29,259	1,097,962	74.25	380,777	75,000	305,777	58,353
Canadian Pacific Lines in Maine	234	89,217	23,788	122,550	49,535	31,236	5,916	72,020	7,357	166,064	135.51	—43,514	13,500	—57,014	—74,854
Carolina, Clinchfield & Ohio	283	326,173	26,135	359,643	32,722	57,198	16,243	85,722	14,512	205,844	57.24	153,799	13,400	140,399	—4,691
Carolina, Clinchfield & Ohio of S. C.	18	17,022	1,998	19,687	902	122	2,174	4,515	865	8,577	43.57	11,110	600	10,510	—678
Central New England	301	431,754	28,065	477,316	95,660	41,309	1,368	194,401	9,003	343,863	72.04	133,453	15,000	118,449	—58,314
Central of Georgia	1,919	1,017,111	417,121	1,592,598	215,617	238,132	44,471	483,680	40,578	1,019,333	64.00	573,265	66,979	505,871	—15,583
Central of New Jersey	684	2,484,834	558,278	3,299,778	319,087	604,264	31,185	1,415,027	66,654	2,456,793	74.45	842,985	150,218	692,557	234,305
Central Vermont	411	285,412	92,699	420,082	66,950	71,073	8,912	216,261	11,305	377,032	89.75	43,051	17,065	25,975	—60,870
Charleston & Western Carolina	342	190,196	51,183	252,455	32,792	32,135	4,410	77,162	3,998	150,498	59.61	101,957	10,000	91,933	—4,922
Chesapeake & Ohio	2,474	3,979,963	737,837	5,046,572	643,913	929,164	61,813	1,697,116	91,933	3,453,532	68.43	1,593,040	290,000	1,302,826	—90,922
Chicago & Alton	1,053	1,348,000	444,700	1,911,764	254,782	450,257	40,169	690,822	34,071	147,502	77.15	436,743	63,850	372,547	—98,676
Chicago & Eastern Illinois	1,131	1,452,108	305,435	1,898,964	160,965	493,533	33,214	708,514	40,830	1,441,824	75.93	457,140	86,750	369,923	59,724
Chicago & Erie	270	745,510	49,914	852,421	87,900	107,191	19,844	383,624	18,552	614,920	72.14	237,501	10,784	226,717	—71,694
Chicago & Northwestern	8,108	7,231,828	2,221,032	10,477,717	1,195,084	1,595,995	119,198	3,973,893	197,378	7,127,352	68.02	3,350,365	600,000	2,747,373	—527,462

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER, 1917—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
Chicago, Burlington & Quincy	9,373	$8,115,152	$2,303,719	$11,342,614	$1,078,003	$1,936,676	$125,567	$3,648,848	$247,852	$7,133,513	62.89	$4,209,101	$1,266,505	$2,942,596	—$1,365,292
Chicago, Detroit & Can. Grd. Trk. Jctn.	60	58,726	15,646	93,571	18,920	18,360	1,170	62,566	3,820	104,836	112.04	—11,265	3,546	—14,811	—32,104
Chicago Great Western	1,496	991,528	380,014	1,491,165	197,347	283,234	46,985	559,365	37,193	1,135,903	76.18	355,262	71,838	283,235	—196,224
Chicago, Indianapolis & Louisville	654	575,693	206,579	844,622	81,203	163,908	23,372	292,379	19,207	579,847	68.65	264,776	40,488	224,409	—6,568
Chicago Junction	13	.....	.....	296,778	46,351	30,199	1,308	166,111	6,465	279,615	94.22	17,163	4,997	12,166	—27,198
Chicago, Milwaukee & St. Paul	10,281	8,043,647	1,901,190	11,034,551	1,035,576	2,248,247	169,111	4,386,704	191,288	8,029,523	72.77	3,005,029	655,569	2,319,371	—1,251,297
Chicago, Peoria & St. Louis	255	168,174	23,874	201,986	24,262	50,123	6,004	94,087	6,142	180,617	89.42	21,369	6,750	14,619	—13,751
Chicago, Rock Island & Gulf	479	271,453	83,925	378,683	31,838	47,760	10,720	109,851	9,685	210,550	55.60	168,132	14,384	153,690	28,920
Chicago, Rock Island & Pacific	7,822	5,411,803	2,194,756	8,162,555	929,290	1,444,500	143,060	2,846,288	182,410	5,583,146	68.40	2,579,409	451,227	2,127,769	—223,971
Chicago, St. Paul, Minn. & Omaha	1,753	1,406,023	489,895	2,054,564	222,575	269,496	26,883	900,889	44,865	1,482,054	72.13	572,510	137,962	434,132	—321,756
Chicago, Terre Haute & Southeastern	374	311,134	18,580	337,799	44,359	106,874	4,002	116,562	10,570	284,927	84.35	52,872	30,000	22,846	—26,052
Cincinnati, Indianapolis & Western	322	149,951	50,487	218,948	29,658	46,368	9,504	91,432	8,930	186,324	85.10	32,623	12,116	20,508	—39,680
Cincinnati, New Orleans & Texas Pacific	337	825,199	316,130	1,202,752	82,296	254,331	29,569	394,902	20,522	781,519	64.98	421,233	95,425	325,804	—88,328
Cincinnati Northern	246	222,373	12,756	241,961	32,340	40,695	8,022	89,615	3,167	173,681	71.78	68,280	19,620	48,660	—12,873
Cleveland, Cincti., Chicago & St. L.	2,387	3,578,276	1,115,175	5,063,791	423,450	1,000,524	134,918	1,986,683	86,555	3,661,256	72.30	1,402,535	424,508	975,003	—486,350
Coal & Coke	197	84,194	22,075	110,484	25,337	26,502	980	44,509	3,101	100,429	90.90	10,056	6,000	4,056	—11,350
Colorado & Southern	1,102	786,738	168,624	1,023,256	81,573	175,020	11,172	307,743	28,014	608,363	59.45	414,892	103,000	311,785	—50,759
Colorado & Wyoming	43	28,126	2,391	90,978	9,979	13,004	55	33,414	4,153	60,605	66.62	30,373	4,100	26,273	—12,412
Colorado Midland	338	182,049	18,137	209,996	32,630	31,242	7,199	97,835	4,421	174,125	82.92	35,871	6,781	29,091	.....
Cripple Creek & Colorado Springs	87	75,407	11,846	89,833	8,844	6,178	1,478	25,683	3,124	45,307	50.43	44,526	4,107	40,418	—2,563
Cumberland Valley	164	343,468	69,256	433,389	39,776	39,818	4,706	145,577	10,803	241,372	55.69	192,017	36,339	155,678	—25,243
Delaware & Hudson Co.—R. R. Dept.	879	2,465,520	257,713	2,862,524	226,360	775,414	34,069	1,157,465	87,903	2,290,204	80.01	572,320	82,836	489,232	—236,351
Delaware, Lackawanna & Western	955	3,974,454	840,661	5,342,937	383,050	820,803	75,839	1,926,158	91,510	3,338,549	62.49	2,004,388	261,866	1,742,319	135,846
Denver & Rio Grande	2,588	2,176,277	462,762	2,794,326	278,408	504,306	36,046	916,947	68,553	1,835,142	65.67	959,184	120,000	839,015	—240,819
Denver & Salt Lake	255	174,806	26,844	209,094	36,070	44,665	1,354	82,463	4,037	168,589	80.63	40,505	8,250	32,255	—24,174
Detroit & Mackinac	385	92,612	29,661	132,733	13,558	30,402	2,193	53,488	3,827	103,469	77.95	29,265	8,026	21,238	—6,950
Detroit & Toledo Shore Line	81	158,496	.....	159,277	8,860	20,571	1,703	38,669	3,911	73,713	46.28	85,564	10,000	75,564	—6,303
Detroit, Grand Haven & Milwaukee	191	204,000	31,000	294,379	53,722	46,599	4,431	164,695	7,089	276,537	93.94	17,842	3,620	13,863	1,318
Detroit, Toledo & Ironton	441	193,548	15,339	229,848	29,574	51,058	3,644	135,647	8,475	228,399	99.37	1 449	8,000	—7,200	—54,103
Duluth & Iron Range	269	931,662	16,315	969,806	82,452	101,026	1,715	250,159	22,780	459,855	47.42	509,952	123,692	386,260	—116,625
Duluth, Missabe & Northern	414	1,777,929	33,399	1,899,046	176,366	134,303	3,647	445,095	55,410	816,377	42.99	1,082,669	403,648	679,021	—571,734
Duluth, Winnipeg & Pacific	175	126,218	22,032	150,400	19,033	24,644	2,667	74,798	4,143	125,810	83.65	24,589	7,520	17,069	—13,955
Elgin, Joliet & Eastern	804	1,229,452	10	1,334,379	128,447	282,092	9,989	498,648	32,650	950,220	71.21	384,159	54,493	329,667	—111,434
Erie	1,988	5,544,529	790,794	6,923,296	724,446	1,605,831	93,758	3,037,342	146,785	5,642,590	81.50	1,280,706	260,130	1,019,496	—320,222
Florida East Coast	765	339,278	138,422	560,740	72,168	116,088	5,740	224,130	16,543	420,921	75.07	139,819	53,504	86,283	—287,284
Fort Worth & Denver City	454	444,953	193,770	674,193	38,248	116,997	6,680	198,284	17,591	381,006	56.51	293,187	94,000	199,185	—45,064
Galveston, Harrisburg & San Antonio	1,361	1,325,757	373,939	1,773,918	212,339	261,548	33,915	548,541	42,659	1,108,588	62.49	665,330	137,917	524,196	—164,090
Galveston Wharf	14	.....	.....	65,185	1,109	1,144	482	20,023	700	42,401	65.05	22,784	13,200	9,584	—50,755
Georgia	334	350,525	146,760	536,405	27,239	48,747	15,193	166,514	9,930	267,743	49.91	268,661	6,178	262,480	114,430
Georgia Southern & Florida	402	166,176	98,712	288,806	35,483	56,705	6,756	102,171	9,233	210,347	72.83	78,459	16,884	61,365	—10,978
Grand Rapids & Indiana	575	374,353	129,417	550,657	69,157	98,031	9,732	242,342	20,977	442,195	80.30	108,462	24,171	84,272	—24,810
Grand Trunk Western	347	614,000	157,000	846,503	128,388	185,307	13,759	365,367	19,869	71,510	85.00	126,993	37,235	89,709	—79,132
Great Northern	8,260	6,590,188	1,505,433	8,834,849	901,764	1,000,309	104,989	3,256,089	131,850	5,463,816	61.84	3,371,033	686,149	2,684,459	—905,210
Gulf & Ship Island	308	173,789	56,906	248,758	30,910	28,969	3,264	68,449	8,523	140,508	56.48	108,250	25,024	83,152	26,996
Gulf, Colorado & Santa Fe	1,937	1,110,998	419,226	1,629,583	252,754	187,216	28,082	544,585	45,431	1,052,008	64.56	577,575	115,071	461,771	—272,310
Gulf, Mobile & Northern	402	187,154	33,526	229,628	26,331	35,765	4,697	63,904	10,092	140,798	61.32	88,830	17,284	71,545	25,576
Hocking Valley	350	886,630	85,573	1,066,127	82,515	246,031	8,663	369,754	25,391	732,284	68.69	333,844	101,000	232,844	—23,975
Houston & Texas Central	949	622,796	194,702	864,116	93,347	72,422	17,338	251,729	20,484	453,761	52.51	410,356	82,436	326,743	—160,887
Houston East & West Texas	191	120,986	41,491	172,410	18,959	6,733	2,088	54,842	3,445	86,044	49.91	86,366	19,043	67,113	—2,918
Illinois Central	4,766	5,794,475	1,601,692	7,980,068	1,081,749	1,684,983	115,362	2,632,376	199,825	5,750,442	72.06	2,229,626	376,612	1,852,403	134,900
Indiana Harbor Belt	109	.....	.....	420,658	58,820	70,521	2,733	226,826	9,651	368,552	87.61	52,106	7,242	44,857	—94,660
International & Great Northern	1,160	898,080	379,113	1,355,372	107,560	191,509	20,817	454,668	31,454	799,172	58.96	556,200	23,000	533,051	57,281
Kanawha & Michigan	177	283,192	38,087	333,263	42,918	75,455	4,146	101,975	7,876	232,371	69.73	100,892	35,310	65,582	20,433
Kansas City Southern	755	825,840	160,244	1,078,274	98,399	172,597	25,480	337,932	32,859	665,944	61.76	412,330	100,659	311,500	—68,158
Lake Erie & Western	900	626,346	53,639	713,311	83,586	128,670	13,927	275,277	15,825	517,285	72.52	196,026	30,000	166,026	—81,335
Lehigh & Hudson River	97	177,925	3,685	187,848	26,235	38,877	2,065	47,614	6,642	122,033	64.96	65,815	16,000	49,815	—27,239
Lehigh & New England	296	335,554	1,307	349,263	38,591	52,668	2,884	109,818	8,979	212,930	60.97	136,333	32,750	103,583	—16,728
Lehigh Valley	1,443	4,210,702	411,666	4,970,374	502,235	1,079,644	80,124	2,275,801	97,094	4,049,756	81.48	920,618	183,415	737,054	—474,343
Long Island	397	489,195	1,083,107	1,739,471	180,620	213,721	15,163	693,562	35,622	1,143,382	65.73	596,088	79,081	517,002	185,602
Los Angeles & Salt Lake	1,154	740,544	377,893	1,216,365	128,812	156,219	32,627	333,120	22,470	689,632	56.70	526,733	84,151	442,563	136,574
Louisiana & Arkansas	302	107,347	31,291	145,171	21,984	23,799	3,929	41,791	4,508	96,011	66.14	49,160	11,596	37,556	8,794
Louisiana Ry. & Navigation Co	342	191,230	60,286	262,159	22,544	33,852	5,821	95,714	6,124	164,055	62.58	98,104	19,192	78,761	19,768
Louisville & Nashville	5,070	5,209,308	1,462,368	7,074,789	825,445	1,443,624	127,362	2,371,518	197,266	4,943,594	69.88	2,131,195	547,649	1,582,945	—407,699

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER, 1917—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues—Freight.	Operating revenues—Passenger.	Operating revenues—Total (inc. misc.)	Operating expenses—Maintenance of—Way and structures.	Operating expenses—Maintenance of—Equipment.	Operating expenses—Traffic.	Operating expenses—Transportation.	Operating expenses—General.	Operating expenses—Total.	Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
Louisville, Henderson & St. Louis	200	$140,588	$50,072	$202,722	$21,440	$30,608	$5,182	$68,386	$3,848	$129,464	63.86	$73,258	$19,300	$53,922	$17,758
Maine Central	1,216	814,098	350,042	1,277,220	143,548	209,134	15,699	545,988	27,627	944,584	73.96	332,636	63,826	268,798	—137,635
Michigan Central	1,862	3,203,664	1,183,589	4,990,388	562,590	650,117	96,158	1,851,672	78,674	3,305,676	66.24	1,684,712	150,000	1,532,753	151,927
Midland Valley	382	193,942	56,859	264,234	47,621	27,967	3,183	78,759	9,108	166,638	63.06	97,596	5,504	92,091	15,117
Minneapolis & St. Louis	1,647	733,658	166,940	962,522	148,710	128,170	18,284	432,800	23,716	751,407	78.07	211,116	46,428	164,361	—143,971
Minneapolis, St. Paul & Sault Ste. Marie	4,228	2,649,033	560,372	3,435,849	353,498	456,306	45,543	1,241,215	58,149	2,165,715	63.03	1,270,135	164,477	1,105,612	—285,671
Missouri & North Arkansas	365	81,469	43,580	132,994	24,665	22,747	3,693	49,079	5,983	106,081	79.76	26,913	10,110	16,701	—22,877
Missouri, Kansas & Texas System	3,869	2,768,139	1,131,376	4,190,876	489,112	917,902	61,985	1,440,463	114,472	3,048,407	72.74	1,142,468	216,702	924,980	—170,008
Missouri, Oklahoma & Gulf	332	137,140	32,847	178,829	17,617	31,224	3,929	72,508	7,482	132,810	74.27	46,018	9,342	36,666	8,069
Missouri, Oklahoma & Gulf of Texas	9	22,238	788	23,091	717	1,676	1,184	3,352	926	7,855	34.02	15,236	184	15,052	2,188
Missouri Pacific	7,302	5,213,897	1,471,329	7,199,531	868,744	1,037,498	136,324	2,338,593	153,026	4,546,717	63.15	2,652,814	439,500	2,211,992	....
Mobile & Ohio	1,160	1,032,277	155,417	1,248,349	135,612	323,568	33,781	426,796	31,539	956,299	76.61	292,051	65,952	225,993	33,121
Monongahela	108	173,469	18,611	195,824	54,228	24,241	967	60,417	4,134	143,987	74.53	51,837	6,000	45,837	—34,356
Monongahela Connecting	6	....	....	202,797	22,543	30,288	415	83,267	4,940	141,463	69.75	61,343	1,593	59,750	50,404
Nashville, Chatt. & St. Louis	1,237	1,023,733	334,248	1,453,249	153,783	246,242	57,238	538,159	34,298	1,036,261	71.31	416,988	100,000	316,796	—123,756
Nevada Northern	165	219,781	17,166	243,489	28,528	18,938	1,468	49,848	10,308	109,174	44.84	134,315	10,398	123,916	9,815
New Orleans & Northeastern	204	332,139	105,337	471,648	52,867	78,152	10,656	163,931	10,918	321,338	68.13	150,310	42,751	107,559	5,926
New Orleans Great Northern	285	133,789	38,127	179,088	17,987	28,551	3,449	55,127	7,116	112,518	62.83	66,570	10,266	56,301	15,056
New Orleans, Texas & Mexico	191	120,013	28,859	153,441	19,869	19,567	3,919	46,041	5,603	94,999	61.91	58,442	4,000	54,439	12,593
New York Central	6,083	14,512,764	5,291,055	22,768,782	2,472,589	3,822,153	266,817	8,321,847	456,745	15,645,557	68.71	7,123,225	1,116,901	6,005,416	—307,833
New York, Chicago & St. Louis	572	1,360,217	114,193	1,546,355	107,861	271,808	46,182	724,565	36,099	1,191,543	77.05	354,813	55,000	299,732	59,038
New York, New Haven & Hartford	1,998	3,635,198	3,141,767	7,704,668	949,911	1,043,034	38,275	3,201,036	217,263	5,584,627	72.48	2,120,041	245,000	1,874,775	—186,401
New York, Ontario & Western	568	564,805	89,450	771,188	98,665	145,755	10,122	321,179	19,967	595,688	77.24	175,500	25,000	150,484	69,194
New York, Phila, & Norfolk	112	373,533	75,255	487,196	24,414	104,703	4,871	209,802	9,991	362,586	74.42	124,610	25,710	98,754	—42,572
New York, Susquehanna & Western	136	220,439	45,931	295,459	46,805	31,617	1,773	155,193	5,909	241,190	91.63	54,269	3,333	50,936	—286
Norfolk & Western	2,085	5,324,689	739,973	6,300,313	596,861	1,146,161	77,566	1,946,005	106,358	3,896,438	61.85	2,403,876	413,000	1,990,765	—135,199
Norfolk Southern	908	312,751	131,120	472,921	64,461	75,743	7,006	183,021	19,862	350,213	74.05	122,708	20,000	102,648	—42,523
Northern Pacific	6,534	6,224,997	1,484,727	8,338,680	883,754	839,043	106,078	2,608,542	154,424	4,498,849	53.95	3,839,831	692,937	3,146,621	—125,543
Northwestern Pacific	507	285,349	150,447	482,707	50,243	49,775	4,718	155,924	9,364	271,318	56.21	211,389	23,980	187,409	49,207
Panhandle & Santa Fe	709	513,147	112,453	650,899	60,798	102,004	5,076	165,425	13,138	346,040	53.16	304,859	201,160	103,699	—150,603
Pennsylvania Company	1,755	5,442,814	1,189,752	7,438,264	947,292	1,384,681	144,666	3,042,436	159,290	5,730,774	77.04	1,707,490	377,292	1,326,022	—658,600
Pennsylvania Railroad	4,563	16,137,980	4,801,489	23,172,622	2,683,946	4,651,888	255,338	9,678,879	570,376	18,223,455	78.64	4,949,167	927,826	4,003,439	—945,916
Peoria & Pekin Union	19	14,193	5,519	101,561	12,132	17,603	45	59,931	3,044	92,755	91.33	8,806	9,500	—694	—11,783
Pere Marquette	337	1,637,321	324,809	2,157,387	224,078	340,003	34,764	866,208	63,874	1,532,083	71.02	625,304	107,686	517,606	—234,390
Philadel., Balto. & Washington	718	1,500,356	1,384,001	3,187,745	333,550	525,301	32,972	1,235,839	61,023	2,187,193	68.61	1,000,552	90,326	910,030	427,572
Pittsburgh & Lake Erie	225	2,142,513	203,023	2,531,575	266,811	406,850	14,207	711,390	38,683	1,443,918	57.04	1,087,657	209,600	878,057	—172,168
Pittsburgh & West Virginia	63	152,510	10,407	171,874	15,698	23,592	1,694	47,257	6,790	98,571	57.35	73,303	11,764	61,539	....
Pittsburgh, Cincti., Chic., & St. Louis	2,399	4,602,252	1,266,720	6,526,122	729,304	1,391,595	174,043	2,541,047	145,913	5,031,421	77.10	1,494,701	263,956	1,230,158	—350,257
Richmond, Fredericksburg & Potomac	88	187,525	210,518	446,455	19,483	54,035	3,955	170,008	9,468	261,282	58.52	185,174	30,520	154,647	51,213
Rutland	415	225,837	105,239	391,534	49,998	61,426	10,314	165,471	8,595	297,244	75.92	94,290	25,209	69,082	—43,351
St. Joseph & Grand Island	258	179,145	29,515	221,411	124,720	30,208	3,149	84,938	5,892	251,170	113.44	—29,758	8,830	—38,588	—130,769
St. Louis, Brownsville & Mexico	548	205,416	94,139	325,320	55,044	43,264	9,757	88,476	9,614	206,089	63.35	119,232	8,000	111,232	—131,679
St. Louis, Merchant's Bridge Terminal	9	....	501	301,252	42,808	22,700	909	146,282	7,801	220,500	73.19	80,752	11,363	69,377	—15,695
St. Louis-San Francisco	4,752	3,635,841	1,480,068	5,409,965	518,001	890,268	61,808	1,793,007	130,136	3,375,168	62.39	2,034,797	221,550	1,811,993	....
Seaboard	3,461	1,774,546	819,721	2,840,116	295,860	486,345	79,135	1,016,942	75,740	1,968,433	69.31	871,682	127,500	742,741	60,881
Southern	6,983	5,740,939	2,726,181	9,139,552	899,602	1,326,372	173,059	3,048,592	189,875	5,649,262	61.81	3,490,290	383,518	3,104,188	670,901
Southern in Mississippi	278	78,781	44,187	133,646	23,735	11,244	2,537	53,844	4,169	95,528	71.48	38,117	9,000	29,107	—3,049
Southern Pacific	7,103	9,739,018	3,124,558	13,951,106	940,081	1,468,656	173,854	4,832,734	260,598	7,876,373	56.46	6,074,733	885,591	5,186,813	1,211,771
Spokane, Portland & Seattle	555	438,421	138,482	622,366	66,229	46,094	8,254	166,285	15,570	306,421	49.23	315,945	58,300	257,631	35,755
Tennessee Central	292	122,493	37,775	171,292	21,025	23,854	4,990	61,356	6,417	117,642	68.68	53,649	4,800	48,849	3,833
Terminal R. R. Association of St. Louis	37	....	2,843	299,740	58,582	31,032	961	97,589	5,177	195,657	65.28	104,083	49,631	54,453	—75,744
Texarkana & Fort Smith	81	75,161	15,263	99,667	8,298	7,528	2,878	30,185	3,956	52,755	52.93	46,911	7,396	39,460	8,752
Texas & New Orleans	468	409,105	148,300	610,706	39,323	75,470	8,825	188,858	11,897	342,809	56.13	267,896	49,743	217,874	11,445
Texas & Pacific	1,947	1,432,916	646,765	2,206,149	189,225	280,405	38,208	803,010	75,373	1,405,280	63.70	800,869	125,000	675,251	—309,613
Toledo & Ohio Central	436	734,207	64,132	860,021	69,228	130,448	19,826	320,107	10,215	551,976	64.18	308,045	48,073	259,962	78,875
Toledo, St. Louis & Western	455	579,067	38,465	647,209	83,760	116,007	20,665	199,557	10,378	430,095	66.45	217,113	46,100	171,013	1,959
Trinity & Brazos Valley	369	87,923	30,376	128,243	26,530	29,482	2,327	42,854	7,378	108,571	84.66	19,672	6,580	13,092	—15,708
Union Pacific	3,622	6,045,763	1,467,157	8,109,351	752,883	1,031,116	106,898	2,132,967	178,327	4,316,585	53.23	3,792,766	541,660	3,251,023	—201,989
Union R. R. of Balto	8	116,632	49,030	167,658	10,935	....	....	9,537	2,388	22,860	13.63	144,798	54,078	90,720	—63,188
Union R. R. of Penna	35	....	....	528,215	16,127	212,146	308	298,657	7,280	534,508	101.19	—6,293	3,517	—9,810	—166,202
Vicksburg, Shreveport & Pacific	171	151,515	64,594	240,871	22,560	36,480	5,635	66,752	6,255	140,147	58.18	100,724	28,100	72,624	—4,202
Virginian	513	785,353	49,050	894,666	70,420	146,472	6,501	250,376	16,987	506,312	56.59	388,354	70,000	318,353	—103,079
Wabash	2,519	2,824,588	693,384	3,830,117	391,021	519,631	79,779	1,529,903	79,761	2,615,874	68.30	1,214,243	161,313	1,052,565	—183,498
Washington Southern	36	64,669	135,552	248,066	15,333	22,660	1,512	79,898	4,638	125,889	50.75	122,177	13,415	108,761	51,569
West Jersey & Seashore	359	278,512	310,891	644,003	138,933	130,743	12,642	354,457	17,154	659,219	102.36	—15,216	45,553	—60,806	—68,071
Western Maryland	697	1,059,601	96,174	1,234,758	128,211	231,302	21,492	415,482	28,500	840,406	68.06	394,352	49,000	345,352	—88,720
Western Pacific	959	774,807	143,264	966,393	136,340	102,089	20,652	294,465	19,730	583,942	60.42	382,451	45,204	337,203	26,599
Western Ry. of Alabama	133	110,766	51,275	175,971	22,510	30,874	6,404	56,479	5,267	123,746	70.32	52,225	14,400	37,825	—5,945
Wheeling & Lake Erie	512	1,058,896	48,623	1,219,238	148,431	225,586	13,733	371,079	21,933	782,994	64.22	436,244	87,207	349,037	33,383
Yazoo & Mississippi Valley	1,382	1,381,603	365,156	1,840,834	223,818	277,742	23,779	549,947	38,292	1,104,458	60.00	736,377	119,401	616,760	—61,365

REVENUES AND EXPENSES OF RAILWAYS

TEN MONTHS CALENDAR YEAR 1917

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance of—										
		Freight.	Passenger.	Total (inc. misc.)	Way and structures.	Equipment.	Traffic.	Transportation.	General.	Total.					
Alabama & Vicksburg	143	$1,156,864	$415,319	$1,721,149	$235,255	$295,790	$50,954	$584,545	$62,318	$1,234,582	71.73	$486,567	$143,448	$342,539	$73,217
Alabama Great Southern	312	4,012,046	1,380,376	5,826,003	618,459	1,195,744	165,468	1,773,664	116,630	3,893,747	66.83	1,932,255	280,146	1,651,817	104,708
Arizona Eastern	378	2,779,273	520,544	2,566,608	418,946	352,568	26,051	768,131	147,141	1,779,727	69.34	1,786,882	256,240	1,529,948	245,865
Atchison, Topeka & Santa Fe	8,644	81,875,210	25,162,164	116,089,569	13,035,735	19,398,840	1,931,207	35,879,322	2,266,152	72,368,220	62.34	43,721,349	8,732,366	34,970,738	—747,091
Atlanta & West Point	93	724,665	527,152	1,432,938	143,422	239,256	64,934	474,956	50,203	997,748	69.63	435,190	97,115	337,778	70,920
Atlanta, Birmingham & Atlantic	640	2,453,975	545,546	3,248,563	476,688	540,841	153,091	1,425,577	107,108	2,701,553	83.16	547,010	139,000	407,145	—6,494
Atlantic & St. Lawrence	167	1,052,085	248,369	1,462,195	409,480	328,444	43,778	1,073,016	68,897	1,923,565	131.55	—461,369	107,210	—568,580	—812,944
Atlantic Coast Line	4,779	23,637,140	9,241,096	35,689,823	4,218,612	5,976,047	627,274	12,857,916	824,758	24,628,465	69.01	11,061,358	1,944,000	9,106,810	374,726
B. & O. Chicago Terminal	79	.....	5,210	1,669,899	198,074	311,525	9,648	1,078,363	71,668	1,681,492	100.69	—11,594	217,528	—229,428	—316,759
Balto., Chesapeake & Atlantic	88	683,478	347,838	1,089,165	67,728	246,057	14,427	590,469	26,636	945,316	86.79	143,849	24,970	118,878	—58,054
Bangor & Aroostook	632	2,797,405	792,448	3,699,792	507,491	613,752	41,524	1,133,433	121,759	2,459,986	66.49	1,239,806	187,500	1,052,280	—82,674
Bessemer & Lake Erie	208	9,978,191	327,902	10,513,587	1,220,506	2,482,647	118,792	3,238,522	215,768	7,122,014	67.74	3,391,572	882,444	2,509,087	—1,637,128
Bingham & Garfield	36	2,614,098	48,878	2,704,287	281,060	320,419	12,084	393,168	35,777	1,052,647	38.93	1,651,639	288,382	1,363,258	—83,028
Birmingham Southern	522	709,629	19,963	972,890	157,604	254,357	8,203	476,298	39,858	936,321	96.24	36,569	31,526	5,043	—137,406
Boston & Maine	2,305	29,317,793	14,842,205	49,626,736	5,395,976	6,956,189	372,574	24,389,379	1,176,298	38,530,265	77.64	11,096,472	1,713,455	9,383,017	—3,495,269
Buffalo & Susq. R. R. Corpn	253	1,375,194	60,799	1,461,891	225,978	412,952	17,405	459,541	63,494	1,179,370	80.67	282,520	50,000	232,515	—96,824
Buffalo, Rochester & Pittsburgh	587	10,928,290	1,088,150	12,466,381	1,275,996	3,260,118	159,847	4,734,129	289,319	973,239	78.10	2,730,142	356,000	2,373,938	—327,047
Canadian Pacific Lines in Maine	234	1,623,572	250,963	1,993,210	384,543	299,864	58,734	893,621	51,450	1,688,212	84.70	304,998	87,000	217,998	—268,111
Carolina, Clinchfield & Ohio	283	3,050,628	242,372	3,372,177	354,489	526,808	163,885	757,973	131,951	1,931,634	57.28	1,440,544	134,000	1,306,532	293,307
Carolina, Clinchfield & Ohio of S. C.	18	157,119	15,357	178,540	16,595	1,078	25,251	39,489	10,467	92,879	52.02	85,660	6,000	79,627	20,064
Central of Georgia	1,919	8,169,884	3,264,332	12,762,566	1,902,799	2,220,119	49,708	4,210,700	410,891	9,130,466	71.54	3,632,100	670,536	2,952,093	208,012
Central of New Jersey	684	22,712,601	5,871,654	31,073,858	2,587,390	5,411,931	313,882	12,215,778	665,837	21,360,331	68.74	9,713,528	1,601,476	8,106,941	—757,905
Central New England	301	4,084,599	298,780	4,581,252	785,623	430,576	12,460	1,623,036	90,384	2,955,249	64.51	1,626,002	184,400	1,441,298	—336,454
Central Vermont	411	2,514,925	812,605	3,741,186	397,321	573,819	82,930	1,895,863	105,319	3,078,669	82.29	662,517	150,719	511,544	—267,113
Charleston & Western Carolina	342	1,468,423	357,516	1,919,743	300,181	233,852	43,622	676,061	38,036	1,291,525	67.28	628,220	75,500	551,655	49,043
Chesapeake & Ohio	2,474	35,556,506	6,362,206	44,978,312	5,767,909	8,959,312	581,031	15,014,586	919,537	31,513,541	70.06	13,464,771	1,831,913	11,629,802	—1,253,782
Chicago & Alton	1,053	11,976,583	4,024,084	17,171,101	1,863,181	3,458,064	398,316	6,043,030	339,405	12,172,057	70.89	4,999,044	567,935	4,428,484	439,458
Chicago & Eastern Illinois	1,131	13,224,931	2,844,382	17,465,428	1,863,888	4,337,638	277,444	6,567,912	408,819	13,507,599	77.34	3,957,828	707,750	3,246,719	836,756
Chicago & Erie	270	6,219,417	491,873	7,307,573	680,129	939,192	196,573	3,375,341	176,891	5,375,766	73.56	1,931,807	292,259	1,639,548	—857,735
Chicago & Northwestern	8,108	60,117,896	20,382,614	89,972,176	11,774,135	14,582,279	1,145,540	35,350,820	1,932,308	65,314,703	72.59	24,657,473	4,600,000	20,048,363	—2,733,053
Chicago, Burlington & Quincy	9,373	72,209,633	20,212,238	101,573,663	11,488,268	15,697,700	1,426,344	33,681,937	2,279,698	65,812,572	64.79	35,761,091	6,121,511	29,639,581	—1,924,601
Chicago, Detroit & Can. Grd. Trk. Jctn	60	741,096	156,596	1,108,014	114,422	160,798	14,983	607,488	23,559	921,251	83.14	186,764	35,460	151,260	—73,712
Chicago Great Western	1,496	9,213,344	3,192,133	13,592,625	1,894,332	2,339,658	461,062	5,179,134	416,534	10,399,216	76.51	3,193,409	574,675	2,609,524	—933,559
Chicago, Indianapolis & Louisville	654	5,209,138	1,796,509	7,611,625	707,223	1,372,715	205,501	2,769,324	187,268	5,243,639	68.89	2,367,986	371,717	1,995,815	—50,802
Chicago Junction	13	.....	.....	2,717,363	337,570	253,659	12,736	1,481,385	55,365	2,381,473	87.64	335,891	36,986	298,937	—118,773
Chicago, Milwaukee & St. Paul	10,247	66,212,356	17,763,057	94,395,682	9,294,187	17,636,078	1,480,843	39,192,920	1,751,353	69,479,813	73.60	24,915,869	5,269,019	19,598,642	—5,787,221
Chicago, Peoria & St. Louis	255	1,468,031	241,443	1,796,415	216,731	396,921	59,922	772,774	59,309	1,505,656	83.81	290,758	78,240	212,500	1,391
Chicago, Rock Island & Gulf	479	2,223,109	679,686	3,117,128	410,438	431,634	103,124	1,014,742	92,400	2,063,539	66.20	1,053,589	117,212	935,758	186,165
Chicago, Rock Island & Pacific	7,727	46,776,435	18,240,071	70,422,539	9,116,032	13,676,184	1,372,428	26,250,650	1,860,101	52,494,721	74.54	17,927,818	3,282,528	14,626,179	—2,590,912
Chicago, St. Paul, Minn., & Omaha	1,753	11,423,671	4,758,632	17,654,369	2,130,124	2,472,666	284,320	7,355,421	452,332	12,842,819	72.75	4,811,550	1,080,207	3,724,507	—1,211,594
Chicago, Terre Haute & Southeastern	375	2,825,554	178,517	3,079,853	364,408	749,377	45,795	1,057,079	85,408	2,326,831	75.55	753,022	175,857	565,422	182,601
Cincinnati, Indianapolis & Western	322	1,533,634	475,506	2,216,098	277,689	379,122	71,471	933,027	77,046	1,742,826	78.64	473,272	103,610	369,661	—61,884
Cincinnati, New Orleans & Texas Pacific	337	7,774,095	2,441,720	10,928,927	823,804	2,436,909	288,010	3,426,631	200,361	7,235,756	66.21	3,693,171	640,175	3,052,880	—13,915
Cincinnati Northern	246	1,824,319	153,331	2,043,375	305,410	342,099	36,384	775,654	31,524	1,487,287	72.79	556,088	87,620	468,448	8,080
Cleveland, Cincti, Chicago & St. L.	2,387	30,294,049	9,809,382	43,881,194	3,806,380	8,147,133	881,180	17,426,508	866,787	31,389,629	71.53	12,491,565	2,052,508	10,430,035	—1,026,810
Coal & Coke	197	843,467	194,117	1,081,403	213,322	266,453	11,340	418,257	29,686	939,059	86.84	142,344	54,000	88,344	—38,950
Colorado Midland*	338	634,389	104,972	787,707	200,071	127,559	34,374	353,849	20,261	741,801	94.17	45,905	33,903	12,002	.....
Colorado & Southern	1,103	6,786,355	1,572,534	8,978,417	843,090	1,534,609	113,102	2,699,690	264,316	5,507,564	61.34	3,470,853	565,737	2,904,004	637,073
Colorado & Wyoming	43	334,886	25,118	996,668	87,350	140,043	1,190	325,056	41,294	594,932	59.69	401,736	36,177	365,559	—25,143
Cripple Creek & Colorado Springs	87	777,174	147,732	950,352	85,652	100,005	16,435	239,771	30,771	472,634	49.73	477,718	33,679	444,039	—70,079
Cumberland Valley	164	3,290,790	593,751	4,066,495	307,821	360,375	46,462	1,297,189	106,565	2,117,940	52.08	1,948,555	398,057	1,550,498	125,888
Delaware & Hudson Co.—R. R. Dept	879	21,280,391	2,603,844	25,221,792	2,174,715	5,233,427	269,740	10,388,501	888,163	19,063,991	75.59	6,157,801	663,272	5,491,326	—1,130,197
Delaware, Lackawanna & Western	955	35,167,227	7,741,847	48,044,405	3,816,751	7,239,890	794,187	17,534,840	901,228	30,686,677	63.87	17,357,728	2,588,660	14,763,583	105,028
Denver & Rio Grande	2,580	17,985,156	3,901,370	23,417,850	2,879,723	4,172,078	395,916	7,382,315	696,440	15,841,439	67.66	7,572,411	991,011	6,580,062	—1,118,921
Denver & Salt Lake	255	1,387,452	299,049	1,747,718	335,721	457,308	21,936	861,038	48,233	1,724,228	98.66	23,489	82,500	—59,021	—382,489
Detroit & Mackinac	385	760,219	284,654	1,131,889	138,934	240,936	23,991	437,669	39,048	881,937	77.92	249,952	81,478	168,092	—94,588
Detroit & Toledo Shore Line	81	1,520,017	.....	1,539,065	81,012	120,083	18,315	469,283	34,619	723,310	47.00	815,755	75,554	740,113	—38,009
Detroit, Grand Haven & Milwaukee	191	1,922,873	382,910	2,762,137	406,188	455,724	54,252	1,647,990	63,248	2,627,646	95.13	134,491	36,200	96,916	—304,369
Detroit, Toledo & Ironton	441	1,952,235	129,904	2,251,496	271,245	364,346	42,381	1,261,241	78,757	2,017,970	89.63	233,526	80,000	152,326	—267,015
Duluth & Iron Range	269	6,016,823	200,686	6,422,208	960,476	785,745	15,969	1,700,919	172,093	3,651,507	56.86	2,770,701	559,613	2,211,088	—797,918
Duluth, Missabe & Northern	414	12,196,665	331,834	13,210,349	1,514,443	1,119,271	32,151	2,735,558	433,003	5,848,163	44.27	7,362,186	2,248,366	5,113,820	—2,156,785
Duluth, Winnipeg & Pacific	175	1,467,821	236,195	1,746,331	175,856	222,770	26,836	768,038	74,682	1,274,239	72.97	472,092	87,298	384,794	—101,184
Elgin, Joliet & Eastern	804	12,310,263	130	13,224,479	1,195,143	3,206,899	83,299	4,540,955	269,704	9,289,602	70.25	3,934,876	518,554	3,416,260	—727,633
Erie	1,988	44,865,958	8,186,662	59,246,262	5,725,996	14,217,863	975,757	26,659,091	1,303,157	49,246,868	83.12	9,999,395	2,280,495	7,700,929	—5,411,757
Florida East Coast	765	3,608,047	2,219,361	6,866,026	670,925	857,429	83,945	2,045,143	157,866	3,706,933	53.99	3,159,092	417,431	2,741,191	—566,006
Fort Worth & Denver City	454	3,572,978	1,365,301	5,233,893	467,160	921,628	75,816	1,526,167	177,841	3,198,069	61.10	2,035,824	326,000	1,709,739	18,072
Galveston, Harrisburg & San Antonio	1,361	11,593,432	3,681,429	16,161,976	1,937,511	2,055,046	332,740	5,159,626	400,742	9,949,943	61.57	6,212,033	968,079	5,230,408	1,819,517
Galveston Wharf	14	.....	.....	927,895	10,839	11,350	3,087	265,910	8,737	520,655	56.11	407,240	132,000	275,240	—176,922

*Figures shown are for period June 1 to October 31.

Railway Regiments' Tobacco Fund

Two more supply companies have made contributions to the Railway Regiments' Tobacco Fund since last week. They are as follows:

Marion Malleable Iron Works, Marion, Ind..... $10 a month
Rodger Ballast Car Company, Chicago..... $10 a month

The Machinery Club of New York City at its last board meeting approved a resolution that appropriated one-third the profits of the cigar department for the month of December for soldiers' smokes. One-half of this amount will be sent to the New York Sun Tobacco Fund and the other half to the Railway Regiments' Tobacco Fund.

Railway Officers in Military Service

In the *Railway Age Gazette* of November 23, page 933, there was published a list of railroad officers sent to Russia to assist in the operation of the Russian railways. By an oversight there was omitted from this list the name of T. H. Lantry, assistant to the vice-president of the Northern Pacific, who is one of the officers of the Russian Railway Service Corps with the rank of lieutenant colonel.

Limitation of Use of Official and Private Cars

The Railroads' War Board, through Fairfax Harrison, its chairman, has addressed to the railroads a bulletin expressing its opinion that the use of official and private passenger cars should be limited in order to relieve overburdened passenger trains. It is suggested that "no such cars be handled, either in free or pay service, except for the accommodation of railroad officers when traveling on necessary railroad business."

Pennsylvania to Sell War Savings Stamps

The Pennsylvania Railroad has completed arrangements for placing on sale the new war savings stamps and thrift stamps at ticket offices and in its shops, freight stations and in the various departments on the Lines East and West of Pittsburgh.

Every ticket agent on the entire system, except those in the immediate vicinity of a post-office, will have the stamps for sale.

As in the case of the campaign for the two Liberty Loans, special efforts will be made to encourage investment in the savings and thrift stamps on the part of employees. It having been found impracticable to place the stamps on sale directly in the pay cars, arrangements will be made wherever possible to have them on sale near the pay cars when employees are being paid.

Japanese Occupy Vladivostok Terminal

According to press despatches, authentic information was received at Washington, Tuesday night, that Japanese troops have occupied the great railroad works at Vladivostok, the Pacific terminal of the Trans-Siberian Railway.

The railroad works which the Japanese have occupied have been the place where all the imported railroad cars and locomotives shipped from the United States and purchased under the Russian credit in this country have been assembled. There are also at Vladivostok great supplies of other kinds of stores, including ammunition. The possession of the railway yards and the railway equipment at the Vladivostok terminals will make it absolutely impossible for the Bolshevist Government to move these cars and stores without the consent of the Entente powers.

Valuation Arguments Presented Before I. C. C.

Arguments in support of the protests of the Texas Midland, the Atlanta, Birmingham & Atlantic and the Winston-Salem southbound against the tentative valuations of their property made by the Bureau of Valuation of the Interstate Commerce Commission were presented before the full membership of the commission at Washington beginning on Monday, December 10, by Pierce Butler and W. G. Brantley, counsel for the roads. Arguments were also made on behalf of the state railway commissions by Charles E. Elmquist, on behalf of the railway brotherhoods by Glen E. Plumb, and on behalf of the Bureau of Valuation by Solicitor P. J. Farrell. The arguments of the railroad counsel followed the briefs they had previously filed, one of 1027 pages in the case of the Texas Midland and one of 737 pages in the case of the Atlanta, Birmingham & Atlantic.

Pierce Butler and Leslie Craven also filed a special reply in the form of notes and comments upon the memorandum recently filed by Director Prouty in the Texas Midland case, with a note stating that it had not been submitted to or considered by the Presidents' Conference Committee and was not filed in its behalf. A similar note was appended to the briefs.

Government Operation of Railways Imminent

The following facts were received by wire from Washington after the first part of this issue containing the article on "Government Operation of Railways Imminent," page 1073, was printed.

Legislative agents of the four railway brotherhoods went to Washington Wednesday at the request of Daniel Willard and conferred with the President after he had seen the railway officers. Representative Sims, the next chairman of the House Committee on Interstate Commerce, also conferred with the President.

The statement is made near the bottom of the second column on page 1075 that 100 locomotives have been ordered from the western to the eastern lines. The Western lines arranged to furnish these locomotives at the request of the War Board at a recent meeting in Chicago at which a pro rata plan for providing them was decided upon. They will be delivered to various Eastern lines at convenient junction points and will be furnished as follows: By the Santa Fe, nine; Northwestern, seven; Burlington, seven; Great Western, one; Chicago, Milwaukee & St. Paul, eight; Rock Island, six; Chicago, St. Paul, Minneapolis & Omaha, two; Duluth & Iron Range, ten; Duluth, Missabe & Northern, twelve; Great Northern, five; Illinois Central, six; Kansas City Southern, one; Minneapolis & St. Louis, one; Minneapolis, St. Paul & Sault Ste. Marie, two; Missouri, Kansas & Texas, two; Missouri Pacific, four; Northern Pacific, five; St. Louis-San Francisco, three; Cotton Belt, one; Southern Pacific, six; Union Pacific, four.

North Western Provides Free Recreation Rooms at Chicago for Soldiers

The Chicago & North Western will soon open spacious club rooms in its Chicago passenger station where soldiers and sailors may make themselves at home while in the city. The new club rooms will be on the street level and will be supplied with comfortable chairs, settees, couches, writing desks and stationery, books, newspapers and magazines, victrolas and pianos, shower and porcelain-tub baths, sanitary bubbling drinking fountains, toilet rooms, wash stands and towels. The Chicago & North Western will also establish an information bureau in charge of a secretary. At this bureau a register will be maintained for the interchange of information between the enlisted men and the public regarding entertainment at homes for week-ends and meals, for the registration of gifts, including tickets for entertainments, and interchange of the donors' and receivers' names. Various societies in Chicago, co-operating with the railroad, have undertaken to provide suitable and frequent entertainments in the club rooms. The use of all these comforts is free to the enlisted men of the army and navy.

Report of Board of Mediation and Conciliation

The Federal Board of Mediation and Conciliation reports that during its life of four years interruption of interstate railway service by labor disputes has been almost negligible. The law does not require the board to make annually or otherwise an official report, but in view of the extreme gravity of the present railway situation a special report has been sent to the President.

In four and a half years there has been a total of 84 disputes, which threatened all classes of employees, but in less than half a dozen instances has there been cessation of train movement. In these cases the disputes broke out suddenly, before the board knew they were impending, and in each case a settlement was effected quickly. In no instance has a strike followed the intervention of the board.

Fifty-seven cases have been settled by mediation. Seven have been solved by combined mediation and arbitration, eight by arbitration, one by congressional action, three by the parties themselves, three are under arbitration, four in mediation and one remains unsettled.

Agreements effected by mediation have been found to be more

satisfactory to all sides. There is no decision against either party and neither of them suffers defeat.

"The present law," says the report, "may not be adequate for dealing with controversies of nation-wide extent, or even those which affect large sections of the country under abnormal conditions, but it seems to be the best plan yet devised. . . ."

The Halifax Catastrophe

In the disastrous explosion of a shipload of munitions in the harbor of Halifax, N. S., on Thursday, December 6, in which twelve hundred or more persons were killed and the city was devastated over a territory of 2½ square miles, the railroads suffered severely. The central passenger station was wrecked, and in it many lives were lost. Practically all buildings in the freight yards were demolished, and about 400 freight cars were destroyed, many of them being burned in the fires which followed the explosion. One statement says that, for a distance of two miles, freight cars were lifted off the track and thrown into the ditches or the adjacent fields. Seventy or more passenger cars were badly damaged. At the Richmond station every employee was killed and many were killed and injured in the freight yards. Of 70 trainmen making their headquarters at that station, only 10 had reported for duty on the Monday morning following the disaster.

MEETINGS AND CONVENTIONS

The following list gives names of secretaries, dates of next or regular meetings and places of meeting of those associations which will meet during the next three months. The full list of meetings and conventions is published only in the first issue of the Railway Age Gazette for each month.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—Chas. Warren Hunt, 220 W. 57th St., New York. Regular meetings, 1st and 3d Wednesday in month, except July and August, 220 W. 57th St., New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, Supt. Timber Preservation, B. & O., Mt. Royal Sta., Baltimore, Md. Next convention, January 22-24, 1918, Hotel Sherman, Chicago.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk, P. O. Box 7, St. Lambert (near Montreal), Que. Regular meetings, 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal, Que.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 176 Mansfield St., Montreal, Que. Regular meetings, 1st Thursday in October, November, December, February, March and April. Annual meeting, January, Montreal.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 Lawlor Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, Morrison Hotel, Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York. Regular meetings, 2d Friday in January, May, September and November. Annual dinner, 2d Thursday in March, Hotel Statler, Buffalo, N. Y.

CINCINNATI RAILWAY CLUB.—H. Boutet, Chief Interchange Inspector, Cin'ti Rys., 101 Carew Bldg., Cincinnati. Regular meetings, 2d Tuesday, February, May, September and November, Hotel Sinton, Cincinnati.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—Elmer K. Hiles, 568 Union Arcade Bldg., Pittsburgh, Pa. Regular meetings, 1st and 3d Tuesday, Pittsburgh, Pa.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—A. M. Hunter, 321 Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Thursday in month. Room 1856, Transportation Bldg., Chicago.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meeting, 2d Tuesday in month, except June, July, August and September, Boston.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 95 Liberty St., New York. Regular meeting, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.

NIAGARA FRONTIER CAR MEN'S ASSOCIATION.—Geo. A. J. Hochgrebe, 623 Brisbane Bldg., Buffalo, N. Y. Meetings, 3d Wednesday in month, New York Telephone Bldg., Buffalo, N. Y.

PACIFIC RAILWAY CLUB.—W. S. Wollner, Assistant to Chief Engineer, Northwestern Pacific R. R., San Francisco, Cal.

PEORIA ASSOCIATION OF RAILROAD OFFICERS.—F. C. Stewart, 410 Masonic Temple Bldg., Peoria, Ill. Regular meetings, 3d Thursday in month, Jefferson Hotel, Peoria.

RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Room 207, P. R. R. Sta., Pittsburgh, Pa. Regular meetings, 4th Friday in month, except June, July and August, Pittsburgh Commercial Club Rooms, Colonial Annex Hotel, Pittsburgh.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August, St. Louis.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grand Bldg., Atlanta, Ga. Regular meetings, 3d Thursday, January, March, May, July, September, November, 10 a. m., Piedmont Hotel, Atlanta.

TRAFFIC CLUB OF CHICAGO.—C. B. Singer, La Salle Hotel, Chicago.

TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 291 Broadway, New York. Regular meetings, last Tuesday in month, except June, July and August, Waldorf-Astoria Hotel, New York.

WESTERN CANADA RAILWAY CLUB.—L. Kon, Immigration Agent, Grand Trunk Pacific, Winnipeg, Man. Regular meetings, 2d Monday, except June, July and August, Winnipeg.

WESTERN RAILWAY CLUB.—J. W. Taylor, 1112 Karpen Bldg., Chicago. Regular meetings, 3d Monday in month, except June, July and August, Hotel Sherman, Chicago.

WESTERN SOCIETY OF ENGINEERS.—Edgar S. Nethercut, Secretary, 1735 Monadnock Block, Chicago, Ill. Regular meeting, first Monday in month, except January, July and August. Extra meetings generally on other Monday evening except in July and August.

Traffic News

The Pennsylvania Lines West will establish the sailing day plan of handling l. c. l. freight at Cincinnati on January 2, and at Pittsburgh some time in the same month.

According to the Altoona Tribune, express trains of 26 cars are now to be seen on the Pennsylvania Railroad. However, these are not sleeping cars or coaches; they are filled with the Adams Express Company's merchandise.

The cotton crop of this year is now estimated at 10,949,000 bales, smaller than the crop in any other year since 1909. The present estimate is more than a million bales below that made by the Department of Agriculture in October. Prices are now higher than before for many years.

The Transportation Committee of the National Lumber Manufacturers' Association, at a meeting held in Chicago, has adopted resolutions calling on the railroads' war board to prohibit the reconsignment of cars put in transit unsold, after such cars have arrived at the original billed destination.

The quantity of vegetables raised in Florida for the northern market this year is said to have been 26,000 carloads, or about 9,000 carloads more than last year; and the growers say that the lack of railroad facilities is now hampering them seriously. It takes eight days, or twice the normal length of time, to get freight from Florida to New York.

The Chamber of Commerce of Hartford, Conn., has an improvised clearing house to economize the work of automobile trucks. A Hartford manufacturer, sending a truckload of freight to Willimantic, 32 miles, got in touch with the secretary of the Chamber of Commerce and through arrangements then made, the truck driver, on arriving at Willimantic, was informed by telephone where a return load of freight could be found.

One of the greatest difficulties confronting shippers and railroad officers alike during the last year and a half has been an everchanging multiplicity of embargoes. L. J. Brinkman, general agent of the operating department of the Michigan Central at Detroit, Mich., has simplified his embargo problem by issuing every day a concise mimeographed statement indicating which roads are open or closed to c. l. and l. c. l. freight from Detroit, with a brief summary of exceptions on each road. The statement also includes a summary of general embargoes and a list of embargoes against industries on the Michigan Central.

At a recent conference in St. Louis, Mo., with representatives of the Missouri and Illinois Fuel Administrations and the St. Louis Fuel Committee representatives of the railroads and coal operators agreed to a plan for limiting the reconsignment of coal and providing for confiscation of coal by the United States Fuel Administration under certain conditions. Under the plan agreed to, unless a bill of lading showing the final destination of coal is received at either the St. Louis or East St. Louis yards before a car arrives, the coal may be taken over by the Fuel Administration and reconsigned to points where it is most needed.

The Chicago, Burlington & Quincy recently issued a list of "don'ts" and "dos" for shippers for the purpose of preventing congestion during the winter months. The circular reads in part as follows: "Don't fail to consult agent before offering shipments for embargoed territory. Ascertain from agent before placing order for car if the route you wish to use is open. Don't ship via indirect lines to avoid embargoed routes, as it has the effect of plugging up quickly the only avenue the railroads have for relieving congestion. Don't think we want you to do it all. We are endeavoring to do our bit. Let us know if we have overlooked anything."

H. C. Bixler, superintendent of stations and transfers of the Pennsylvania Railroad, announces that at a conference of railroad men and shippers, an agreement has been reached for the use of standard containers for fruits and vegetables shipped by freight, the shippers being represented in the conference by the Fruit & Vegetable Transportation Association of the South and East. At this conference, held in New York City last Tuesday,

about 150 persons were in attendance, including representatives of the Department of Agriculture and of the New York City Government, steamship men and makers of boxes, crates and barrels. To insure satisfactory transportation and to avoid losses and waste, the Fruit & Vegetable Transportation Association has been working for some time toward the adoption of standard containers for each kind of vegetable; and at this conference a large number of sample boxes and crates were exhibited. Fourteen types were approved and recommended for adoption by all shippers of perishable freight. Among the designs approved are a lettuce crate, an orange box, a celery crate, two kinds of crates for cantaloupes, and numerous others. For each design there is a specification, naming every bit of material and prescribing every process of manufacture.

New Elevator at Erie

Overcoming the greatest difficulties in obtaining materials and labor the Pennsylvania Railroad has finished its new grain elevator at Erie, Pa., in time to render material assistance in moving the final grain shipments from the northwest, before the closing of navigation. The new elevator, a steel and concrete structure, replaces the old wooden plant which was destroyed in two successive fires. The first cargo, which has just been elevated and transferred to cars, consisted of 101,000 bushels of wheat from the steamer John Owen. It will be shipped abroad from Philadelphia. The lake trip to Erie is considerably shorter than to Buffalo, and may enable some steamers to make one more round trip, prior to the coming of heavy ice. The new elevator consists of 30 reinforced circular tanks, 18 interstice tanks and 22 side and pocket bins, having a total capacity of 1,156,400 bushels. It has track room for more than 150 cars, and is capable of unloading grain at the rate of 25,000 bushels an hour. The plant is complete in all respects, including powerful car pulling machinery for placing cars, and is absolutely fireproof. All machinery is operated electrically, and electric lights are used throughout.

Reductions in Passenger Service

The Pennsylvania has discontinued the express train leaving Pittsburgh, Pa., for New York City at 1 p. m.; and beginning with next week will discontinue, between New York and Washington, all of the through sleeping cars to and from points in the southern states, except on two trains. It is said that these withdrawals of sleeping cars will be equivalent to three full trains. The southward trains on which sleepers will continue are those leaving New York at 9:30 p. m., and midnight (12:30 a. m.). The Southern Railway express, leaving New York at 11:08 a. m., will be taken off, as will four northbound expresses; those leaving Washington at 7:30 a. m., 9:05 a. m. (two sections) and 11:15 a. m. The Florida Limited and the Florida Special, winter resort trains, will not be run north of Washington this winter. The foregoing changes aggregate about 3,000 passenger-train miles daily.

The Pennsylvania Railroad advises that there is no foundation for the report as circulated by the press that the company proposes to discontinue any of its regular two-hour express trains between Philadelphia and New York, or that it has reached an agreement with the Philadelphia & Reading to divide the passenger business between those two cities, either in equal shares or in any other manner.

The demand for transportation between New York City and Philadelphia, over the Pennsylvania, exceeds the capacity of the trains now operated and as a large proportion of this traffic is for business purposes of the highest importance—much of it relating to the conduct of the war—the question of curtailing the service presents a very difficult problem.

Livestock Shipments Regulated

Beginning Monday, December 10, all shipments of live stock into the Chicago market will be stabilized in accordance with a plan recently suggested by the Railroads' War Board. This plan, which also tends to stabilize prices, was adopted at a conference of representatives of the Chicago Car Service Committee of the Railroads' War Board, the Federal Food Administration, growers and shippers of livestock, commission men and the packing interests.

Under the old plan, which allowed unrestricted shipments of livestock, heavy consignments of cattle would arrive in Chicago on one or two days of the week and light consignments during the remainder. To avoid all the undesirable results of this custom, what is called the zone system of regulating shipments was evolved and will govern all shipments on and after December 10.

Under this plan, within a zone of approximately 300 miles of Chicago, livestock will be received for shipment to reach the Chicago market only on Tuesday, Thursday, Friday or Saturday. Within the second zone, beyond 300 miles from Chicago and up to the 36-hour limit for shipments of live stock, shipments will be received to reach the Chicago market on Monday, Wednesday, Friday or Saturday. The third zone embraces all territory outside of the 36-hour limit from Chicago and from this zone shipments of live stock may be made at any time to reach the Chicago market on any week day.

It is probable that this system of stabilizing shipments and prices of live stock will be extended with necessary modifications to all the big live stock markets of the country.

New York State Waterways

Governor Charles S. Whitman, of New York, speaking before the Atlantic Deeper Waterways Association, at Miami, Fla., November 29, presented arguments in favor of deepening the Hudson River, between New York and Albany, so that ocean vessels could sail to Albany and thus relieve the congestion in New York harbor. He said that ample land, conveniently situated, could be made into a terminal, near Albany, where freight could be transferred from canal boats to larger vessels and vice versa. The governor said that the foreign commerce passing through Albany by rail amounts to more than 14,000,000 tons yearly. The completion of the new barge canal, next spring, should increase this volume of freight. The Hudson River is deep enough already for ocean-going vessels from New York up to a point about 40 miles south of Albany. The governor thinks that motor trucks will make the barge canal available to many shippers who, without them, could not expect to share in its benefits.

Representatives of the New York State Waterways Association propose to call upon the National Council of Defense for an appropriation of $5,000,000 for the construction of barges for service on the new canal next year. This appropriation is urged as a military necessity and as "a means of benefiting the entire nation."

The Chamber of Commerce, at its regular monthly meeting in New York City, December 6, adopted resolutions requesting the governor of New York to direct the proper state officers to take the steps necessary, including co-operation with the appropriate Federal Department, to provide suitable and sufficient equipment to enable the barge canal and other waterways to be made use of to the fullest possible extent. On Monday, December 10, about 300 men, representing the Federal and State governments and commercial interests, met at the Chamber of Commerce, endorsed the resolutions which had been passed, and listened to addresses on the prospects of the canal and the need of additional transportation by General W. W. Wotherspoon, superintendent of Public Works of the State of New York, and Major-General William W. Black, chief of engineers of the United States Army. General Black said that many corporations were building barges for the transportation of freight on the Mississippi, Missouri and the Ohio rivers. He regarded the Erie Canal as of the highest importance in developing the powers and resources of the country for the winning of the war. He does not believe in government ownership of transportation lines.

Facilitating Export Freight

The export division (sitting at New York) of the eastern carriers' operative committee now has authority over the issuance of railroad shipping permits embracing all commodities for export via Boston, New York, Philadelphia, Baltimore, Norfolk and Newport News, excepting United States Government freight. This extension of authority was put in effect on December 12. In connection with this centralization of export permits at New York, the general operating committee (Pittsburgh) ordered that all lines reaching North Atlantic seaboard ports embargo at once all export freight through those ports, except for the United States Government, and that any existing permits be canceled. This drastic action is declared to be vitally essential, and the committee calls for thorough co-operation in the handling of traffic for overseas shipment, so that cars which would otherwise be available for fuel, foodstuffs and Government

freight shall not be used in moving traffic which cannot be promptly trans-shipped when it reaches tidewater.

In an endeavor to enlist the aid of the commercial steamship lines, Chairman George D. Ogden, of the export division, has asked the Trans-Atlantic Associated Freight Conference and the steamship committee of the New York Produce Exchange to co-operate in relieving the congestion at the seaboard. He requests that in contracting cargo they give marked preference to the traffic now at the seaboard, rather than to book new business from the interior. He also asks for help in cases where cargo booked for specific sailing fails to arrive in time, thus involving a second engagement. "In event it were practicable for the steamship lines, in such instances, to create a co-operative plan for the purpose of turning such belated shipments to other steamship lines that might have available space for the same foreign destination," much relief would be accomplished.

Notes on the Coal Situation

More coal was forwarded from ports of the great lakes up to December 2 than during the entire season of 1916. It was estimated that 26,000,000 tons of coal would be required this year by consumers, but that estimate has now been exceeded by 1,072,290 tons, or 1,446,020 tons more than the total lake shipments of coal last season. Also, the Northwest has received, all-rail, from the fields of Illinois and Indiana this year nearly three times as much coal as last year.

Fuel Administrator Garfield has approved plans of the Coal Shippers' Terminal Pool Association for establishing terminal coal pools in the central west to facilitate handling of the coal supply. The plan contemplates uniform pooling arrangements under the Central Executive and Advisory Committee of the pool association wherever pools are established with the approval of the Fuel Administration.

Shipments of anthracite coal in November amounted to 6,545,313 tons, or about a half million tons more than in November of last year. For the 11 months ending with November the total shipments aggregated 71,434,360 tons, or 4,057,990 tons greater than the total shipments for the 12 months last year. To date this year the shipments exceed those of the same period in 1916 by 9,640,743 tons.

The pool committee, which represents coal operators in the central territory, will meet at Cleveland on Friday with F. C. Baird, who has been authorized to represent the General Operating Committee of the Eastern Railroads. Mr. Baird has also been designated to act as the official representative of the Fuel Administration in clearing up the congestion of coal shipments on the Chesapeake & Ohio, which has delayed the coal supply of Michigan and other central western points. He will combine the authority to control the transportation conditions with the authority conferred by Mr. Garfield in order to effectively deal with the emergency.

According to the weekly report of the Geological Survey for the week ending December 8, the total production of bituminous coal was 10,273,014 net tons, a decrease of 10.8 per cent, as compared with the production of the preceding week. Shipments of anthracite as reported by the nine principal carriers decreased 12.8 per cent. For the week ending November 24 lack of cars was responsible for 20.2 per cent of the deficiency from full time operation and, the report says, inadequate transportation facilities thus remain overwhelmingly the dominant factor limiting the output of soft coal.

Governor James H. Cox went over the heads of Federal Fuel Administration officials on December 12, and took the Ohio coal shortage problem in his own hands. His first move was to order solid train loads of coal assembled and sent immediately to points in the state most seriously in need of fuel. The order was directly contrary to instructions of F. C. Baird, Federal Fuel Administrator in charge of the lakes coal pool, Cleveland, who refused by long-distance telephone Wednesday to sanction such action. Subsequently word came that Mr. Baird had decided to send a representative to Columbus in accordance with the Governor's wish to keep in close touch with the distribution. He said by telephone that he would co-operate with the state. The changed attitude of the Fuel Administration representative, it is believed, will work to practically a complete distribution of all lakes coal, which means that no fewer than 5,000 cars in Ohio and more than 10,000 cars held in Kentucky, near Cincinnati, will be moving to consumers without further delay.

Commission and Court News

INTERSTATE COMMERCE COMMISSION

Express Companies Ask Higher Rates

Representatives of the principal express companies testified before the Interstate Commerce Commission on December 7 in support of their application for a general 10 per cent increase in express rates on interstate traffic. It was announced that they proposed to ask the state commissions for a similar increase if their application is granted by the federal commission. T. B. Harrison, counsel for the express companies, stated that since the Interstate Commerce Commission allowed an increase on September 1, 1915, the expenses of the express companies had increased much faster than their revenues, but that the increases during the present year have been abnormal. In addition to the general rise in prices for labor and materials, Mr. Harrison said that the increase in expenses was largely due to the abnormal increase in traffic, and results from overloaded equipment, congestion of terminals, and the shortage of equipment caused by the use of so many express cars for military traffic, which has made it necessary for them to use box cars on some of the eastern roads in place of express cars. He also spoke of the large increase in the amount of loss and damage claims due to congestion, poor packing by the shippers, shortage of labor, and especially to the increased value of the commodities transported. As a result, he said, it has come about than the operating receipts of the express companies are less than enough to pay their expenses. If an increase is allowed and the abnormal conditions shall change, the companies will be willing to co-operate with the commission in reducing the rates.

J. H. Henderson, counsel of the Iowa Railroad Commission, appeared as chairman of a committee representing various western state railroad commissions. Hugh La Master, counsel of the Nebraska Commission, and a member of this committee, said the state commissions would desire an opportunity to examine the exhibits of the express companies before announcing their position, but that the American Express Company had charged the cost of the retirement of a large building in New York to expenses and had charged it to only four years' operations, making the annual charge more than the amount of the deficit. He thought the charge should have been made to surplus.

J. W. Newlean, vice-president of Wells, Fargo & Co., introduced an exhibit giving the composite statements of the Adams, American, Southern and Wells Fargo companies, which showed that for the seven months ending July 31, 1917, while the revenues from domestic express transportation were $115,662,604, as compared with $96,083,108 in the corresponding period of 1916, the operating expenses had increased from $43,411,080 to $56,261,522. Taxes had also increased, with the result that whereas the operating income in the corresponding seven months of 1916 was $3,675,694, or 3.82 per cent of the gross receipts, in 1917 there was a deficit of $508,527, or .44 per cent of the gross receipts. The exhibit contained numerous financial statements and also a table showing an increase in wages during the period from August, 1916, to October, 1917, equivalent to over $6,000,000 a year. Another exhibit gave a detailed statement of the increases in the prices paid for articles of supply and equipment essential to express operations.

The Interstate Commerce Commission has announced a further hearing on the application of the express companies for increases in rates, at Washington, on December 18.

STATE COMMISSIONS

The Public Service Commission of New York, Second district, has been appealed to by the railroads to stiffen its rules for the marking of packages or loose pieces of l. c. l. freight; and a hearing is to be held at Albany December 18. They ask for the revocation of the orders of the Commission issued in 1908, so that carriers may demand that each package be marked with the name and address of the consignee. The present rule prescribes that only two packages in a shipment need be fully marked.

COURT NEWS

State Statute as to Handholds—Contributory Negligence

The Circuit Court of Appeals, Sixth Circuit, holds that under Gen. Code, Ohio, Sec. 8951, forbidding common carriers to move a locomotive not provided with grabirons or handholds in the sides and ends thereof, a railroad company is guilty of negligence where it operated an engine on the pilot of which a turtleback or iron bar had been placed, which rendered it impossible to use the handholds. The suit was one for injury to a track repairer, who, for the purpose of riding to dinner at the railroad's camp, attempted to step on the footboard on the pilot end of the engine, which was moving, tender foremost, at a speed of 8 to 12 miles an hour and hauling six empty cars; he missed either his footing or his handhold, fell under the cars, and lost a leg. Under the Ohio statute contributory negligence does not bar recovery where that is slight and the employer's negligence great. The questions whether the railroad employee's negligence was slight as compared with that of the company, as well as the comparative degrees of negligence, were held jury questions. There was evidence that the employees were warned not to board moving trains, but that their superiors acquiesced in their doing so. It was held that the plaintiff, in violating a mere warning, which did not amount to a prohibition, was guilty of only contributory negligence, and judgment for the defendant was reversed and a new trial ordered because of an instruction to the jury that might have led them to believe that recovery was absolutely barred because of such verbal warnings.—Heskett v. Pennsylvania, 245 Fed. 326. Decided October 2, 1917.

Recent Decisions Under the Federal Employees' Liability Act

The Illinois Supreme Court holds that a carpenter employed by an interstate and intrastate railroad in building forms on the margins of a right of way into which concrete was to be poured to form retaining walls for concrete for the elevation of the tracks, injured by sawdust flying into his eye, was not engaged in interstate commerce.—Dickinson v. Industrial Board (Ill.), 117 N. E., 438.

The North Carolina Supreme Court holds that an employee who, on the specific orders of the foreman, was carrying cross-ties to a repair track used by the railroad in interstate commerce, and which track was to be used by a waiting train immediately on being repaired, was engaged in interstate commerce.—Cherry v. Atlantic Coast Line (N. Car.), 93 S. E., 783.

Cars billed from another state were placed in the yards at the place to which they were billed. The Kentucky Court of Appeals holds that a member of the switching crew was not engaged in interstate commerce when injured the next day after their arrival while changing them to another track, solely for convenience in taking them to another place in the state.—Louisville & Nashville v. Meadors (Ky.), 197 S. W., 440.

The Michigan Supreme Court holds that a servant employed to provide coal and water for locomotives and to aid in moving them about the yards while on their way from Ohio to Michigan or from Michigan to Ohio was employed in interstate commerce, though sometimes the engines came in from one state at night and did not go out until the next morning. Gay v. Cincinnati Northern (Mich.), 164 N. W., 454.

The federal district court, N. D. Dakota, holds that an employee of an interstate railway company engaged in operating a pumping station furnishing water indiscriminately and contemporaneously to locomotives engaged in interstate and intrastate commerce is within the act.—Roush v. B. & O., 243 Fed., 712.

The Circuit Court of Appeals, Sixth Circuit, holds that an employee engaged in repairing a bridge used by an interstate carrier on its main line is engaged in interstate commerce.—Cincinnati, N. O., & T. P., 243 Fed., 76.

The North Carolina Supreme Court holds that a crossing flagman required to give signals to an interstate train and injured while assisting the engineer in its operation over the crossing is engaged in interstate commerce within the act.—West v. Atlantic Coast Line (N. Car.), 93 S. E., 479.

The New York Supreme Court, Trial Term, Saratoga County, holds that a brakeman injured while assisting in staking an empty freight car out on a siding in New York City for attachment to an interstate train, the car being billed to a foreign railroad's terminal in New York was injured in interstate commerce within the act; his train having come from Vermont to New York.—Daley v. Boston & Maine, 166 N. Y. Supp., 840.

Equipment and Supplies

LOCOMOTIVES

THE AMERICAN & FOREIGN SALES CORPORATION, Munsey building, Washington, D. C., advises that it desires to buy 2 second-hand standard gage locomotives, weighing 35 or 40 tons and in good running condition.

RUSSIAN GOVERNMENT. According to reports, the orders outstanding for cars and locomotives placed last May on behalf of the Russian Government have not be canceled, but work on them has been held up. The orders outstanding call for about 500 large locomotives and 10,000 four-wheel freight cars. The orders for 1,500 locomotives and 30,000 cars which were in contemplation and which were distributed in October and November were not definitely signed and no work has been done on them.

FREIGHT CARS

THE NATIONAL TUBE COMPANY is inquiring for 30 50-ton ore cars.

J. S. MULLEN, Kansas City, Mo., is inquiring for 8 to 10 tank cars.

THE BALTIMORE & OHIO is inquiring for 2 to 10 8,000 to 10,000-gal. tank cars.

J. EDWARD CRUSEL, New Orleans, La., is inquiring for 30 to 50 8,000-gal. to 10,000-gal. tank cars.

THE UNITED STATES ARMY has ordered one spreader car from the Central Locomotive & Car Works.

THE ESSEX TERMINAL RAILWAY has ordered 50 gondola cars from the Canadian Car & Foundry Company.

THE VIRGINIA-CAROLINA RAILWAY has ordered 8 80-ton flat cars from the Central Locomotive & Car Works.

THE LOUISVILLE & NASHVILLE has ordered 300 steel underframes from the Western Steel Car & Foundry Company.

THE FLORA AMERICAN PLYWOOD COMPANY, Macon, Ga., has ordered 20 flat cars from the Central Locomotive & Car Works.

THE AMERICAN SMELTING & REFINING COMPANY is inquiring for 30 20 to 30-ton steel hopper cars and 30 30-ton dump cars.

THE VULCAN STEEL PRODUCTS COMPANY, New York is inquiring for prices on 100 flat, 150 box and 70 stock cars for South America.

THE GLEN NINA TANK LINE, N. M. Pierce, owner, Buffalo, N. Y., has ordered 50 8,000-gal. capacity tank cars from the Pennsylvania Tank Car Company.

IRON AND STEEL

THE GREAT NORTHERN has ordered 1138 tons of steel from the American Bridge Company for the renewal of 160 inner pockets at ore dock No. 3, Allouez, Wis.

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered 2 77-ft. 8-in. deck plate girders from the American Bridge Company for a bridge at Romeo, Tex., 110 tons.

SIGNALING

THE INTERURBAN RAILWAY has ordered from the Union Switch & Signal Company materials for automatic block signals on three pieces of single track on its line between Des Moines, Iowa, and Camp Dodge.

THE SOUTHERN RAILWAY has awarded to the General Railway Signal Company a contract for the construction and installation of automatic block signals between Charlotte, N. C., and Spartanburg, S. C., 76 miles, double track. With the completion of this work, the Southern will be equipped with automatic block signals from Washington, D. C., to Atlanta, Ga., 649 miles; and alternating current is used throughout.

Supply Trade News

H. G. Doran & Co., Chicago, has been appointed agent for the Rivet Cutting Gun Company, Cincinnati, Ohio.

Henry Gaul, a forging machine expert connected for many years with the Ajax Manufacturing Company, Cleveland, Ohio, died recently.

The Union Railway Equipment Company, Chicago, has purchased the exclusive rights to manufacture and sell the Bourell brine valve or retainer formerly handled by the Western Sales Company, Chicago.

G. A. Schneider, formerly of the San Francisco sales organization of the Western Electric Company, has been appointed manager at the Buffalo house, succeeding J. W. Tabb, who has been transferred to New York.

New Glidden Company Formed

One of the most important transactions in the annals of the paint and varnish trade of this country has just been concluded by the outright purchase of the Glidden Varnish Company, of Cleveland, Ohio, and its subsidiary, the Glidden Varnish Company, Ltd., of Toronto, Canada, by a newly formed corporation headed by Adrian D. Joyce, who was until recently director and general manager of sales and distribution of the Sherwin-Williams Company. The new company will be known as the Glidden Company, and is capitalized at $2,500,000, fully paid in.

A. D. Joyce

Associated with Mr. Joyce are O. A. Hasse, formerly manager of paint and varnish sales for the Sherwin-Williams Company, and R. H. Horsburgh, controller of the same company. They will assume the positions of vice-president and secretary-treasurer, respectively, in the new corporation. All three have resigned their connections with the Sherwin-Williams Company, and it is positively stated that the new company is not in any way connected with other paint and varnish interests.

O. A. Hasse

Members of the Glidden family, including F. A. Glidden, heretofore president of the company, will retire from the new corporation, but the balance of the organization will remain intact and will be enlarged as necessity demands.

The present Glidden plant, occupying nearly 17 acres, is a model in completeness of equipment and modern arrangement. With present extension plans completed the company will be the largest varnish plant in the country.

The Glidden Varnish Company has been in business nearly 50 years. Railroad and steamship companies are among the largest Glidden customers. Many large Government contracts will be executed by the new company.

Adrian D. Joyce has been 20 years in the paint and varnish business, mostly with the Sherwin-Williams Company. He was for several years a traveling salesman, later special representative for the Industrial Trade, then sales manager of the Kansas City district and finally assistant sales manager of the company in Cleveland. He was then advanced to general manager of sales and distribution. He has had a broad sales and executive experience, and had charge of all sales and warehouse direction. He has been closely identified with national and international affairs in the paint and varnish trade, and is experienced in manufacturing. He has paid particular attention to raw materials and studied specially the new uses of paint and varnish materials. He was a director of the Sherwin-Williams Company.

R. H. Horsburgh

O. A. Hasse's entire experience has been in the paint and varnish business. He started in the advertising department, then served as secretary and finally was transferred to sales department in charge of sales, serving consecutively in the following departments: insecticides, insulating varnish, railroad, street railroad and marine finishes, also general manufacturing sales, and then for several years he was manager of paint and varnish sales. He has had experience as a traveling salesman, and is familiar with the sales and manufacturing problems, having had at one time entire charge of the development of railway sales. He has also made a deep study of raw materials.

R. H. Horsburgh was with the Sherwin-Williams Company for 18 years, starting as office boy and working up to controller. In this latter position he was in charge of credits, accounts, taxes and insurance. He was in close touch with the financing of the company, was a credit specialist and has spent his entire career in this industry.

E. M. Baylies, eastern manager of the P. & M. Company at New York, has been appointed general sales agent with offices at 30 Church street, New York, and Railway Exchange building Chicago. He was born at Des Moines, Iowa, on March 14, 1878. After graduating from high school he was for two years with the Metropolitan West Side Elevated, Chicago, as a student apprentice, following which he was with the Rockford & Interurban as assistant to the general manager. He was later associated with the Aluminum Company of America as assistant sales agent at Chicago, and on December 1, 1914, was elected eastern manager of the P. & M. Company. He has been a stockholder and director of the P. & M. Company since its organization.

E. M. Baylies

A. A. Strom, vice-president of the Pettibone-Mulliken Company and president of the U. S. Ball Bearing Company, whose death was mentioned in these columns, on December 9, was born in Sweden in 1855. He came to this country at the age of 14 and worked in the foundries of N. S. Bouton & Co. at Chicago. He started a small forge shop in Chicago in 1880 with P. A. Godey, at first working at the forge himself. The business increased rapidly and in 1885 it was incorporated under the name of the Strom Manufacturing Company. This business was later incorporated with Pettibone-Mulliken Company, with which Mr. Strom had been associated ever since. At his death he was a director and vice-president of that corporation and also president of the U. S. Ball Bearing Manufacturing Company.

A. A. Strom

TRADE PUBLICATIONS

MILLING CUTTERS.—The Cleveland Milling Machine Company, Cleveland, Ohio, is issuing a stock list of milling cutters on the fifteenth of each month. In this stock list each type of milling cutter is illustrated and the number of each size and quality of material which are available for immediate shipment are tabulated. copies will be furnished on request.

A. G. A. GRADE CROSSING SIGNALS.—This is the title of a pamphlet of 20 pages, illustrated in colors, which has been issued by the A. G. A. Railway Light & Signal Company, Elizabeth, N. J., to describe its flashlight signal for highway grade crossings. Detailed illustrations and descriptions are given of the signal, including the construction of the flashing apparatus, together with illustrations of the acetylene containers; also a view of a crossing at Richland, N. J., protected both by the A. G. A. light and by gates.

HOISTING MACHINERY FOR INDUSTRIAL WORKS.—Under this title the Shepard Electric Crane & Hoist Company, Montour Falls, N. Y., has issued a loose-leaf catalogue bound in a heavy manila cover. The catalogue refers in detail to the construction and specifications for the Shepard hoists, gives a complete outline of the terms and conditions of purchase, including prices and discounts. It gives all the information necessary for selecting and specifying the various types and sizes of hoists. Clearance drawings for each type are given.

UNIVERSAL VERTICAL AND HORIZONTAL BORER.—The Oliver Machinery Company, Grand Rapids, Mich., has issued a four-page folder containing illustrations and specifications of its No. 74 Universal vertical and horizontal wood boring machine. This machine has a single spindle each in the horizontal and vertical positions, which have a capacity of boring holes up to three inches in diameter. The folder also contains illustrations of the Oliver "Little Pattern Makers," which are boring machine cutting tools for use in profiling and core box work, fillet cutting, etc., operations which the pattern maker is often compelled to do by hand.

"HYDRO" PRESSURE AND DRAFT RECORDERS.—Catalogue "D" ot the Bacharach Industrial Instrument Company, Pittsburgh, Pa., is an eight-page pamphlet in which is described in detail the design and construction of the "Hydro" recording instruments. The moving element of these recorders is a ball floating in water, to which is attached a recording pen. The position of the pen is determined by the differential pressure between the inside and outside of the bell. The instruments are made in several types, both recording and indicating, for a variety of uses where draft vacuum, low pressures and differential gas pressures are to be measured.

Financial and Construction

FINANCIAL NEWS

COLORADO, KANSAS & OKLAHOMA.—This 51-mile road, operating between Scott City, Kan., and Winona, is to be sold for junk at Scott City on December 15.

MINNEAPOLIS & ST. LOUIS.—Newman Erb, who for several years following the death of Edwin Hawley was president of this company but who subsequently resigned as both a director and president, has been elected a director again.

NEW YORK, NEW HAVEN & HARTFORD.—Eli Whitney has resigned as a director.

SOUTHWESTERN RAILWAY.—A. C. Parks announces that he was appointed receiver of this company on November 12 by the United States District Court for the Northern District of Texas. The road extends from Henrietta, Tex., to Archer City, a distance of 29 miles.

UTAH RAILWAY.—This company began operation under its own management on November 30, on which date its contract with the Denver & Rio Grande expired.

RAILWAY CONSTRUCTION

COLUMBIA RAILWAY & NAVIGATION COMPANY (ELECTRIC).—Surveys have been made for an electric line to be built from Columbia, S. C., west to Greenwood, 76 miles. On account of unsettled business conditions construction work is indefinitely postponed. F. H. Haskell, chief engineer, Columbia.

ELECTRIC SHORT LINE.—Surveys are being made for a line to be built from Hutchinson, Minn., to Lake Lillian, 25 miles. R. C. Jones, traffic manager, Minneapolis, Minn.

ILLINOIS CENTRAL.—This company has purchased property on the west side of its right of way at Fifty-third street (Hyde Park), Chicago, upon which it plans to construct a new passenger station.

INTERNATIONAL RAILWAY (ELECTRIC).—A contract has been given to the Buffalo Dredging Company to build an electric line from Buffalo, N. Y., to Niagara Falls, 16.5 miles.

MISSOURI, KANSAS & TEXAS OF TEXAS.—This company has awarded a contract to the List & Gifford Construction Company, Kansas City, Mo., for the elimination of three grade crossings and the improvement of three under grade crossings at Dallas, Tex. The work involves the use of 55,000 lb. of steel, 5,400 cu. yd. of concrete, the excavation of 50,000 cu. yd. of earth and the construction of a fill of 135,000 cu. yd. The cost of the work is estimated at $350,000.

USE WOOD INSTEAD OF COAL.—To help meet the shortage of 50,000,000 tons in the country's coal supply the Fuel Administration, in co-operation with the Department of Agriculture, has inaugurated an intensive campaign for the substitution of wood for coal. "One cord of hard wood is equal to a ton of coal," said an announcement by the Fuel Administration. "One ton of coal is released for use in war work for every cord of wood substituted. Statistics show that there is a vast amount of dead wood in many sections of the country and that the supply of wood in many communities is sufficient for domestic purposes in those parts." Much of the wood in communities is destroyed as waste, it was pointed out, and its conservation not only would conserve coal, but would prove a measure of economy to the users. New England and the South, the statement said, have an abundance of wood and in the latter section activities already are under way looking to an intensive campaign for the substitution of wood. In this connection it was announced that the Department of Agriculture would provide the services of expert foresters without charge to supervise the cutting of wood so that no damage would be done to growing timber and that the largest use might be obtained of the wood supply.

ANNUAL REPORT

SEABOARD AIR LINE RAILWAY COMPANY

REPORT OF THE DIRECTORS FOR THE FISCAL YEAR ENDED DECEMBER 31, 1916.

PORTSMOUTH, VA., OCTOBER 18th, 1917.

To the Stockholders of the Seaboard Air Line Railway Company:

The Board of Directors submits the following report of the operations of your properties for the year ended December 31, 1916:

The Interstate Commerce Commission issued an Order on November 24, 1916, requiring railway companies to furnish Annual Reports of their operations for the calendar year instead of the former fiscal year ending June 30th, the first report to be made as of December 31, 1916. In order that the Annual Report of this Company shall cover the same period, this report is submitted for the twelve months period ended December 31, 1916, and future annual reports will be made for the calendar year, which now becomes the fiscal year, instead of the fiscal year ending June 30th.

INCOME ACCOUNT

FOR YEAR ENDED DECEMBER 31, 1916, COMPARED WITH YEAR ENDED DECEMBER 31, 1915.

	1916	1915	Increase
Gross Revenue	$26,184,487.25	$22,640,876.44	$3,543,610.81
Operating Expenses and Taxes	18,742,598.01	16,605,976.09	2,136,621.92
Net Operating Revenue (after Taxes)	7,441,889.24	6,034,900.35	1,406,988.89
Uncollectible Railway Revenue	12,890.34	8,223.22	4,667.12
Operating Income	7,428,998.90	6,026,677.13	1,402,321.77
Other Income	460,431.79	403,106.39	57,325.40
Gross Income	7,889,430.69	6,429,783.52	1,459,647.17
Rents and Other Charges	210,135.81	245,035.27	34,899.46†
Hire of Equipment	143,991.87	(Cr.) 3,674.57	147,666.44
Applicable to Interest	7,535,303.01	6,188,422.82	1,346,880.19
Fixed Interest Charges	4,673,292.39	4,383,620.97	289,671.42
Balance	2,862,010.62	1,804,801.85	1,057,208.77
Full 5% Interest on Adjustment (Income) Bonds	1,250,000.00	1,250,000.00	
Net Income	$1,612,010.62	$554,801.85	$1,057,208.77

†Decrease.

The Gross Revenue increased 15.65 per cent., Operating Expenses increased 13.15 per cent., Taxes increased 8.94 per cent., Operating Expenses and Taxes increased 12.87 per cent., and Operating Income increased 23.27 per cent.

The Operating Expenses, exclusive of Taxes, were 66.96 per cent. of the Gross Revenue, as compared with 68.44 per cent. the previous year; and including Taxes, 71.58 per cent. of Gross Revenue as compared with 73.35 per cent. for the preceding year.

MILEAGE OPERATED.

The mileage of the Seaboard Air Line Railway Company in operation on December 31, 1915, was		3,449.29
Extension constructed during the year	10.00	
Less spur tracks taken up	.37	9.63
Additional trackage acquired during the year	2.58	
Less trackage discontinued	.16	2.42
Mileage in operation December 31, 1916		3,461.34

Made up as follows:

MILEAGE OWNED.

The owned mileage of the Seaboard Air Line Railway Company on December 31, 1915, was		3,373.57
Extension constructed during the year	10.00	
Less spur tracks taken up	.37	9.63
Mileage owned December 31, 1916		3,383.20

LEASED LINES.

Meldrim, Ga., to Lyons, Ga.	57.65	

TRACKAGE.

Howells, Ga., to Terminal Station, Atlanta, Ga.	2.58	
Howells, Ga., to Freight Depot, Atlanta, Ga.	2.84	
Hilton, N. C., to Navassa, N. C.	2.40	
At Birmingham, Ala.	.07	
Freight Yard Jct., Birmingham, Ala., to Bessemer, Ala.	14.88	
At Bessemer, Ala.	.16	
Near Mulberry, Fla.	1.46	82.04
		3,465.24
DEDUCT.		
Amelia Beach branch, leased to City of Fernandina, Fla.	2.00	
Silver Springs, Fla., branch, leased to Ocklawaha Valley Railroad Company	1.90	3.90
Total mileage operated December 31, 1916		3,461.34
Average miles of road operated during the year		3.451.54
Average miles of road operated shows an increase over previous year, of		1.26%
Sidings (including 23.94 miles on Leased Lines and Trackage)		948.00

SECOND TRACK.

Between Raleigh, N. C., and Cary, N. C.	7.59	
Hamlet, N. C., Northwardly	9.61	
At Atlanta, Ga.	2.30	
At Birmingham, Ala	3.05	
At Tampa, Fla.	1.32	
TOTAL		23.87

CHANGES IN OPERATED MILEAGE.

An extension to the Company's lines in Florida, known as the "Kissimmee Valley Ten Mile Extension," was built eastwardly from the end of the Lake Wales line. 10.00 Miles.

Trackage rights acquired over the Southern Railway from Howells, Ga., into the Terminal Station at Atlanta, Ga. 2.58 Miles.

12.58 Miles.

Spur tracks at Dunnellon, Fla., removed during the year. .37

Trackage discontinued over the Western and Atlantic Railroad from Freight Depot to Union Station at Atlanta, Ga. .16 .53 Miles.

Net Increase 12.05 Miles.

In addition to the above, a spur about one mile long, near Mulberry, Fla., known as the "Christina Spur," has been practically completed.

The Operated Second Track Mileage has been increased during the year by acquiring Trackage Rights over 2.30 miles of track owned by the Southern Railway at Atlanta, Ga.

FUNDED DEBT.

Of the $3,184,500 First and Consolidated Mortgage, Series "A," Six Per Cent. treasury bonds as of June 30, 1916, $2,750,000 were sold, of which $2,062,000 were delivered up to December 31, 1916, leaving $688,000 for later delivery.

$2,306,000 Seaboard Air Line Railway Refunding Mortgage Four Per Cent. Bonds were during the year refunded under the provisions of the First and Consolidated Mortgage by the issue in exchange of $1,700,000 First and Consolidated Mortgage, Series "A," Six Per Cent. Bonds; the bonds so refunded were deposited with the Trustee of the First and Consolidated Mortgage as provided in said Mortgage.

The total amount of First and Consolidated Mortgage, Series "A," Six Per Cent. Bonds outstanding in the hands of the public on December 31, 1916, was $26,221,500.

The $285,000 outstanding Seaboard and Roanoke Railroad Company Registered Six Per Cent. Certificates of Indebtedness maturing August 1, 1916, were refunded at maturity by the issue of First and Consolidated Mortgage, Series "A," Six Per cent. Bonds in accordance with the provisions of the First and Consolidated Mortgage. The holders of the Seaboard and Roanoke Certificates were paid in cash and the First and Consolidated Mortgage Bonds received in this transaction were placed in the Treasury of the Company.

There were redeemed and cancelled during the year $53,000 Florida Central & Peninsular Railroad Company Land Grant Extension Five Per Cent. Bonds, including $8,000 of these bonds mentioned in the last annual report.

For further details of the Funded Debt, see Table No. 4.

EQUIPMENT.

An equipment agreement, Series "R," was entered into on July 1st, 1916, for the purchase of

5 Mountain Type Passenger Locomotives.
2 Gas Electric Motor Cars.
15 All-steel Express Cars.
3 All-steel Dining Cars.
2 All-steel Observation Dining Cars.
50 Steel Under and Upper Frame Caboose Cars.

Under said agreement the cash payment of $99,890.45 was represented by a deferred certificate which was received into the treasury of the Company and pledged under its First and Consolidated Mortgage in accordance with the provisions thereof, and the remainder of the purchase price was represented by Equipment Trust obligations aggregating $510,000, bearing interest at the rate of 4½% per annum, payable in twenty semi-annual installments of $25,000 and $26,000, alternating on the first day of January and the first day of July in each year, commencing January 1, 1917, and ending July 1, 1926.

Of this equipment there was received during the fiscal year:

15 All-steel Express Cars

In addition to the equipment named above, the following were purchased and placed in service during the year:

3 Ballast Spreader Cars.
6 Air Dump Cars.

MAINTENANCE OF WAY AND STRUCTURES.

ROADWAY, TRACK AND STRUCTURES.

Roadway, track and structures of the company have been properly maintained at a cost of $3,187,544.10, which represents an expenditure per mile of $923.51.

SIDE TRACKS.

42.16 miles of new sidings and extensions of existing sidings were constructed, and there were deducted by removal and changes of old sidings, 8.77 miles, making a net increase over previous year of 33.39 miles.

There were also constructed 2.40 miles of new sidings on leased lines, and there was deducted by removal .24 mile, making a net increase of 2.16 miles over previous year.

TIE RENEWALS.

Tie renewals were 1,632,264 cross ties and 1085 sets of switch ties, and the cost, $749,604.76, was charged to Operating Expenses.

RAIL.

88.95 miles of new 85-lb. and 20.24 miles of new 90-lb. steel rail, making a total of 109.19 miles, were laid in the main line, releasing therefrom lighter worn rail. There was charged net to Operating Expenses therefor, $126,024.56, and to Capital Account $132,680.03.

In addition, 45.51 miles of released 68, 75 and 85-lb. steel rail were laid on branch lines, releasing 70-lb. and lighter rail, and there was charged to Operating Expenses therefor, $18,987.36, and to Capital Account, $47,568.14.

BALLAST.

226,990 cubic yards of gravel and slag ballast were put under main line track during the year, and of the total cost thereof, $357,861.97 was charged to Capital Account.

TRESTLES FILLED.

2,442 lineal feet of wooden trestles were filled in during the year and of the total cost thereof, including culverts, $15,008.40, was charged to Operating Expenses.

TRESTLES REBUILT AND BALLAST DECKED.

There were built during the year out of creosoted timber 4,695 lineal feet of ballast decked trestles, replacing old open deck trestles, and of the total cost thereof, $60,503.35, was charged to Operating Expenses.

BRIDGES.

Work has been done on five bridges, providing fenders, replacing with steel or concrete, or strengthening them for heavier traffic.

Four of these bridges were authorized during the year and all of them have been completed, the principal one being a reinforced concrete highway overpass, 32 feet by 111 feet, at Blanding Street, Columbia, S. C.

The total expenditure for the above bridge work during the year was $22,581.94, of which $19,720.23 was charged to Capital Account and $2,861.71 to Operating Expenses.

In addition to the above, work is now in progress replacing the structures destroyed by the high water of July, 1916. This work will be completed during the coming year and consists of the following:

Catawba River, near Mount Holly, N. C., three through truss spans, each 165 feet long, and one deck girder span 50 feet long.

Catawba River, near Van Wyck, S. C., four through truss spans, each 147 feet long.

Wateree River, near Camden, S. C., one through truss span 200 feet long.

Also, the above does not include the new Strauss Bascule lift bridge and the two new deck girder spans at Hilton Bridge, near Wilmington, N. C., which have been completed.

This bridge, as mentioned in previous report, is owned by the Wilmington Railway Bridge Company, which Company is owned and operated jointly by the Seaboard Air Line Railway Company and the Atlantic Coast Line Railroad Company.

RAIL IN MAIN LINE.

The total operated main line single track mileage of the system, 3,461.34 miles, is laid with steel rails of the following weights:

Miles.	Weight.	
0.50	91 lb.	rail.
53.87	90	"
513.61	85	"
97.42	80	"
1,220.20	75	"
256.48	70	"
200.03	68	"
18.87	65	"
60.48	63.5	"
3.95	60.5	"
557.20	60	"
218.40	58	"
260.33	56	" and lighter.
Total 3,461.34		

The above does not include:

SECOND TRACK.

Raleigh, N. C., to Cary, N. C.:		
7.59 Miles	85 lb.	rail.
Northward from Hamlet, N. C.:		
9.09 Miles	90	"
.52 "	75	"
At Atlanta, Ga.:		
2.30 Miles	85	"
At Birmingham, Ala.:		
1.43 Miles	75	"
1.62 "	60	"
At Tampa, Fla.:		
1.32 Miles	75	"

LINES OWNED BUT NOT OPERATED—LEASED.

Silver Springs Branch:		
1.20 Miles	60 lb.	rail.
.70 "	56	"
Amelia Beach Branch:		
2.00 Miles	50	"

MAINTENANCE OF EQUIPMENT.

The equipment of the Company was fully maintained during the year at a cost of $3,909,973.80.

Included in the cost of maintenance is $71,183.65, representing value of equipment destroyed or retired from service during the year and credited to Cost of Equipment.

There was also included in the Cost of Maintenance $435,649.96 for depreciation, which was credited to Reserve for Accrued Depreciation.

The cost of maintenance per article owned was as follows:

Average cost per annum per Locomotive owned	$2,642.25
Average cost per annum per Passenger car owned	758.40
Average cost per annum per Freight car owned	63.21

The extension from Charleston, S. C., to Savannah, Ga., mentioned in Annual Report for year ended June 30, 1916, is still in process of construction, but will be completed during 1917. This will provide two distinct and separate main lines between Hamlet, N. C., and Savannah, Ga., both serving different thriving sections. The completion of this extension and the grade revision between Hamlet and Charleston, now in progress, will give a line with a maximum five-tenths percent compensated grade and a maximum curvature of three degrees betwen Hamlet, N. C., and Jacksonville, Fla., with the exception of three curves of four degrees. The new portion of the line from Charleston to Savannah will have a maximum three-tenths percent grade and two degree curves, and will effect a large saving in handling traffic between Hamlet and Savannah, as it will allow an increase of 127.5 percent in tonnage per train as compared with the tonnage which can be handled via the present Columbia route.

The grade revision which is now in progress between Hamlet, N. C., and Charleston, S. C., will be completed during the coming year and, as noted above, will give a maximum five-tenths percent grade line in both directions between these points.

During the year work has been completed between Raleigh, N. C., and Sanford, N. C., correcting the short and irregular grades in this line, thus facilitating train operation through this district and making a large saving in operating costs. Grade revision work is now in progress on certain sections of the line between Sanford, N. C., and Hamlet, N. C., which will eliminate two pusher grades, and provide a five-tenths percent grade against Northbound traffic and an eight-tenths percent grade against Southbound traffic on these sections. This will increase thereon the train loading, and equalize the drawbar pull, thereby facilitating operation and reducing hazard and making a saving in operating cost. This grade revision work between Raleigh and Sanford and between Sanford and Hamlet is all located on one engine district.

A modern fireproof machine and erecting shop and blacksmith shop have been completed during the year at Portsmouth, Va., to replace buildings destroyed by fire. In addition, there has been provided a new power house, flue shop, engine, carpenter and paint shop, two wash and locker rooms, and one engine drop pit. A 50,000 gallon steel water tank was built in connection with the present fire protection facilities. New and modern machinery has been provided for the additional facilities including heavier power cranes for handling locomotives.

New shop facilities and additions to present facilities to serve both the Car and Locomotive Departments are now under construction at Howells, Ga. These facilities will be completed during the coming year. The additional facilities at Raleigh, N. C., and Hamlet, N. C., mentioned in previous report, have been practically completed and are now in operation. New facilities for the Mechanical Department are also in course of construction at Andrews, S. C.

The coach shop at Jacksonville, Fla., has been completed by the addition of a concrete floor and a transfer table. New machinery has also been installed, thus providing modern facilities for repairing coaches at the south end of the Company's line. The use of these facilities for heavy repairs to passenger coaches at this point will avoid the long haul which was formerly made in moving the cars to Portsmouth.

Team tracks and paved driveways have been practically completed on the additional property which has been acquired during the year at Plant City, Fla. This provides facilities to care for the large and increasing business at this point, and also gives an additional frontage of 420 feet on adjacent property owned by outside parties and suitable for industrial locations.

The joint industrial track with the Central of Georgia Railway at Savannah, Ga., mentioned in the Annual Report for year ended June 30, 1916, has been completed. This track serves the cotton storage warehouses of the Savannah Warehouse and Compress Company, and also affords opportunity for other large industrial development.

An important industrial track has been constructed at Timmonsville, S. C., to serve present and future development located off the Company's Right of Way.

Tracks have been provided at Jacksonville, Fla., to reach the industries located on the development of the Commodore Point Terminal Company's property on which are to be located wharves and terminal warehouses.

The train yard at Raleigh, N. C., is now being rearranged and extended to give an increased capacity of approximately 625 cars, and also, to provide tracks of sufficient length to accommodate trains 125 cars long.

Extensions to the yards at Monroe, N. C., Howells, Ga., and Charleston, S. C., are also under construction and will be completed during the coming year.

Second main track is being provided from the south end of Raleigh train yard to a connection with the present Raleigh-Cary double tracks, thus constituting a continuous double track from the train yard to Cary.

New passenger stations are now in process of construction at Florence, S. C., and Manatee, Fla., and the present station at Charlotte, N. C., is being completely remodeled and extended. All of this work will be completed during the coming year.

Construction is also in progress on Union Passenger Stations at Cary, N. C., Rochelle, Ga., and Ocala, Fla., all of which will be finished during the coming year.

The present umbrella shed at Henderson, N. C., has been extended during the year, and a new shed has been provided at Catawba Junction, S. C. A new shed is also in process of construction at Turkey Creek, Fla.

A new combination passenger and freight station has been completed at Ailey, Ga., and one is now under construction at Bee Ridge, Fla.

A freight depot has been provided at Palmetto, Fla., and one is now being built at Helena, Ga.

Additional fire protection facilities are now being installed at the Shops, Savannah, Ga.

Important paving and street work has been done at Greenwood, S. C., Savannah, Ga., Orlando, Fla., Tampa, Fla., Bradentown, Fla., Manatee, Fla.; Sarasota, Fla., and at several other points on the system to comply with municipal requirements.

Necessary dredging has been done during the year to maintain the required depths of water at the following terminals: Tampa, Fla., Hutchinson Island, Savannah, Ga., and Charleston, S. C.

6 track scales were rebuilt with concrete foundations and steel "I" beams, replacing wood.

4 old water tanks were replaced with new 50,000 gallon tanks and suitable pumping facilities provided.

113 industrial sidings and extensions to industrial sidings already existing have been constructed or are in process of construction.

15 depots and freight stations have been constructed or substantially added to during the year.

20 passing tracks have been constructed or extended or are in process of construction.

The heavy rains which prevailed in the Carolinas during July washed out and destroyed three (3) steel bridges, total length of which aggregated 1,242 feet, also about 1½ miles of trestle, and in addition thereto the roadbed was overflowed and impassable at several other points. During this period, through main line service was interrupted.

The work of the Valuation Committee created as a result of the passage of section 19-A of the Federal Act to Regulate Commerce was continued during the year at a cost of $56,983.55, which was charged to General Expenses.

The Territory served by the Seaboard is unsurpassed in the United States for traffic producing potentialities by reason of the mineral resources, water powers, port facilities, lumber reserves, fertile lands, long growing seasons, and the capacity for varied production at all seasons.

The opportunities for expansion in this territory are very great. It is the policy of the road to build and broaden the foundation for permanent success through systematic development by colonization and immigration activities, the stimulation of agricultural and horticultural pursuits, and the location of industrial enterprises.

To this end we have devoted much attention and energy and a separate department for this work is maintained and known as the Development Department.

CHANGES IN ORGANIZATION.

Mr. G S. Rains was appointed Freight Traffic Manager on July 1, 1916, succeeding Mr. L. E. Chalenor, resigned to become Chairman of the Southeastern Freight Association.

Mr. W. L. Stanley was appointed Assistant to President, with offices at Atlanta, Ga., effective November 1st, 1916, being a new position created to provide for efficient dealing with the public and Railroad Commissions.

Effective November 1st, 1916, the office of General Claim Agent was abolished. Mr. W. G. Loving was appointed Attorney in Charge of Personal Injuries and Mr. W. C. Moore was appointed Freight Claim Agent. These are new positions, embodying the work formerly handled by the General Claim Agent.

Effective September 1st, 1917, Judge Legh R. Watts at his request, was relieved from the office of General Counsel, and appointed Consulting Counsel. Mr. E. Marvin Underwood was appointed General Counsel.

Effective June 15th, 1917, Mr. L. C. Fritch was appointed General Manager.

The Board records its thanks and appreciation to the offices and employees for the faithful discharge of their duties during the year.

By order of the Board:

W. J. HARAHAN,
President.

CAPITAL EXPENDITURES FOR ROAD AND EQUIPMENT.
YEAR ENDED DECEMBER 31, 1916.
SUMMARY OF EXPENDITURES:

Additions and Betterments on Existing Mileage	$2,005,848.17
Equipment Acquired	172,315.26
Expenditures for Extensions	21,094.27
TOTAL AS ABOVE	$2,199,257.70

[ADV.]

Railway Officers

Executive, Financial, Legal and Accounting

C. M. Ball has been appointed assistant to the vice-president and general manager of the Oregon Short Line, with headquarters at Salt Lake City, Utah, succeeding E. L. Hickey, promoted.

W. T. Kemper, receiver, has been elected president of the Kansas City, Mexico & Orient. Herbert F. Hall was elected chairman of the board of directors and A. De Bernardi, Clifford Histed and H. S. Garret have been elected vice-presidents, and M. L. Mertz, a member of the board.

A. M. Penney, vice-president and general traffic manager of the Waupaca-Green Bay, Waupaca, Wis., has been elected president to succeed John Gordon, deceased. Irving P. Lord, secretary and general consul, has been elected vice-president to succeed Mr. Penney. H. G. Breit was elected secretary to succeed Mr. Lord, who still retains the general consulship of the company.

Charles Henry Ewing, who has been appointed vice-president of the Philadelphia & Reading, with headquarters at Philadelphia, Pa., was born on May 28, 1866, and began railway work on August 1, 1883, in the engineering department of the Philadelphia & Reading. He was appointed supervisor in December, 1891, of the same road and from 1893 to July, 1902, was chief engineer of the Central New England Railway. He was then, to June, 1905, division engineer of the Reading and Lebanon divisions of the Philadelphia & Reading. In June, 1905, he was appointed engineer maintenance of way of the same road, remaining in that position until 1910, when he became superintendent of the Atlantic City Railroad. On January 1, 1913, he was appointed general superintendent of the Philadelphia & Reading, and in March, 1916, was appointed general manager, which position he held at the time of his recent appointment as vice-president of the same road, as above noted.

C. H. Ewing

Operating

J. C. Austin, trainmaster of the Southern Railway at Wilton, Ala., has been appointed trainmaster, with office at Birmingham, vice T. O. Crane, transferred.

W. M. Weidenhamer, division superintendent of the Chicago, Burlington & Quincy at Alliance, Neb., has been appointed inspector of transportation of the Chicago, Milwaukee & St. Paul.

W. H. Kirkbride, division engineer of the Sacramento division of the Southern Pacific, with office at Sacramento, Cal., has been appointed assistant superintendent of the same division with headquarters at Sacramento, succeeding J. T. Bell, who has been transferred to the Salt Lake division.

W. T. Wolff, special agent in the operating department of the Pennsylvania Lines West at Pittsburgh, has been appointed superintendent of freight station service, with headquarters in the same city. The position is a new one and its duties are to direct as to classifications for the loading of l. c. l. freight; to have general supervision over all service incident to the intensive loading of c. l. freight (including coal) and of l. c. l. freight; to keep in touch with details of all operations at freight stations, including the weighing of l. c. l. freight and the use of mechanical devices, and to make appropriate recommendations to division superintendents in the interest of efficiency and uniformity of practice. Mr. Wolff will work under the direction of the superintendent of freight transportation.

O. C. Hibbs, whose appointment as assistant superintendent of the Chicago, Burlington & Quincy, with headquarters at Daytons Bluff, Minn., was announced in these columns on December 7, was born at Fontanelle, Iowa, on July 3, 1882. He entered the service of the Burlington on June 10, 1899, serving as operator and train despatcher on the Ottumwa division until December 1, 1906. From December 1, 1906, to October 25, 1912, he was night chief despatcher, and from October 25, 1912, to July 1, 1916, he was chief despatcher at Galesburg, Ill. On July 1, 1916, he was promoted to trainmaster at Galesburg, Ill., which position he held until the time of his appointment, as noted above, effective December 1.

Traffic

John A. Groves, commercial agent of the Atlanta, Birmingham & Atlantic, has been transferred from Kansas City office to New York office.

R. M. Calkins, traffic manager of the Chicago, Milwaukee & St. Paul at Seattle, Wash., has been promoted to vice-president in charge of traffic for the entire system, including subsidiary lines, with headquarters at Chicago, effective December 15. Mr. Calkins succeeds J. H. Hiland, vice-president in charge of passenger traffic, and E. S. Keeley, vice-president in charge of freight traffic, both of whom have resigned. Mr. Calkins was born at Ogdensburg, N. Y., on August 12, 1863. He entered railway service in 1879 as a clerk and telegraph operator on the Chicago, Milwaukee & St. Paul at Monticello, Iowa. Subsequently he was local agent at various points, including Oxford Junction, Iowa, Sigourney and Ottumwa, between December, 1881, and June 15, 1892. For four years he was agent at Kansas City, Mo., and on June 30, 1896, he was appointed division freight and passenger agent at Mason City, Iowa. On June 25, 1898, he left the St. Paul to become general freight and passenger agent of the Des Moines Northern & Western at Des Moines, Iowa. He returned to the St. Paul as assistant general freight agent with headquarters at Chicago on February 10, 1899. Ten years later he was appointed general freight and passenger agent of the Chicago, Milwaukee & Puget Sound and the Montana Railroad, with headquarters at Butte, Mont. From June 26, 1910, to January 1, 1913, he was traffic manager of the Chicago, Milwaukee & Puget Sound, and from the latter date until December 15, 1917, he has been traffic manager of the Puget Sound lines of the Chicago, Milwaukee & St. Paul, with headquarters at Seattle, Wash.

R. M. Calkins

G. C. Henderson, traveling freight and passenger agent of the Denver & Rio Grande, with headquarters at Kansas City, Mo., has been promoted to general agent, with headquarters at Ft. Worth, Tex., succeeding J. E. Woodfin, resigned. H. I. Scofield, traveling freight and passenger agent, with headquarters at Detroit, Mich., has been promoted to general agent with the same headquarters, succeeding A. E. Brown, resigned, effective December 1.

C. C. Clark, general agent in the passenger department of the Michigan Central, with headquarters at Chicago, has been promoted to assistant general passenger agent with the same headquarters, effective December 1. He was born at Loveland, Ohio, and entered the service of the Cincinnati, New Orleans & Texas Pacific in 1889. In 1895 he was appointed soliciting passenger agent of the Cleveland, Cincinnati, Chicago & St. Louis at Cincinnati, Ohio, following which he was assistant ticket agent, traveling passenger agent and city passenger agent on the same

road. In 1905 he was appointed general agent in the passenger department with headquarters at Columbus, Ohio, and subsequently he served as general agent at Indianapolis, Ind., and Cincinnati, Ohio. On January 22, 1911, he was appointed general agent of the passenger department of the Big Four and Michigan Central in Chicago. On the separation of these two roads Mr. Clark remained with the latter road in the same capacity, which position he held at the time of his appointment, as noted above.

A. E. Brown, general agent of the Denver & Rio Grande, with headquarters at Detroit, Mich., has been appointed general agent in the traffic department of the Chicago & Alton, with headquarters at Detroit, succeeding Arthur Maedel, transferred in the same capacity to Peoria, Ill., succeeding S. A. Williams, whose promotion to general agent in charge of operation and traffic at St. Louis, Mo., was mentioned in these columns on October 5.

Engineering and Rolling Stock

W. D. Hitchcock has been appointed master mechanic of the Albuquerque division of the Atchison, Topeka & Santa Fe, with headquarters at Winslow, Ariz., succeeding M. Weber, transferred, effective December 1.

H. R. Warnock, superintendent of motive power of the Western Maryland at Hagerstown, Md., has been appointed general superintendent of motive power of the Chicago, Milwaukee & St. Paul, with headquarters at Milwaukee, Wis., succeeding A. E. Manchester, deceased.

C. A. Wirth, road foreman of engines of the Northern Pacific, with headquarters at Pasco, Wash., has been appointed master mechanic on the Pasco division, with the same headquarters, succeeding G. F. Egbers, granted leave of absence to enter the Russian Railway Service Corps, effective October 13. E. P. Smith has been appointed road foreman of engines on the Minnesota division, with headquarters at East Grand Forks, Minn., succeeding L. L. Moebeck, transferred, effective November 12.

W. E. Ricketson, mechanical engineer of the Cleveland, Cincinnati, Chicago & St. Louis, with headquarters at Beech Grove, Ind., has been appointed chief of the equipment division, valuation department of the New York Central Lines, with headquarters at New York, taking the place made vacant by the death of Mr. Buchanan last February. Mr. Ricketson was graduated from Cornell University in 1907, with degree of M. E. and began railway work in 1903 with the Delaware & Hudson Company, for which company he worked during his summer vacations while attending college. From 1907 to 1910 he was special apprentice with the Lake Shore & Michigan Southern, and the following two years successively was roundhouse foreman of the Lake Erie, Alliance & Wheeling at Alliance, Ohio, and the Lake Shore & Michigan Southern at Ashtabula. He was then general foreman of the latter road at Youngstown, Ohio, until September, 1913, when he was appointed assistant mechanical engineer of the Cleveland, Cincinnati, Chicago & St. Louis. On March 1, 1914, he was promoted to mechanical engineer, which position he held until his recent appointment as chief of the equipment division, valuation department, of the New York Central Lines, as above noted.

The following additional changes have been made as a result of the reorganization of the mining and fuel department of the Chicago, Rock Island & Pacific, noted in the issue of December 7, page 1060. The supervision of the use of fuel, formerly under the direction of the mining and fuel department, will henceforth be handled by the mechanical department. H. Clewer, master mechanic at Trenton, Mo., has been appointed superintendent of fuel economy, with headquarters at Chicago. His duties in this position include the supervision of the use of fuel, locomotive supplies, lubricating materials and general features in connection with the efficiency of locomotive operation. John Benzies, road foreman of equipment at Trenton, Mo., has been appointed supervisor of fuel economy of the Chicago Terminal, Illinois, and Missouri divisions, with headquarters at Rock Island, Ill. F. Meredith, road foreman of equipment at Silvis, Ill., has been appointed supervisor of fuel economy of the Iowa, Nebraska and Colorado divisions, with headquarters at Fairbury, Neb. P. Smith, assistant engineer of fuel economy, has been appointed supervisor of fuel economy on the Cedar Rapids, Minnesota, Dakota and Des Moines divisions, with headquarters at Cedar Rapids, Iowa. F. Connolly, road foreman of equipment, at Herington, Kan., has been appointed supervisor of fuel economy of the St. Louis, the Kansas City Terminal, the Kansas and the El Paso divisions, with headquarters at Herington, Kan. W. H. Booth, road foreman of equipment, at El Dorado, Ark., has been appointed supervisor of fuel of the Louisiana, Arkansas and Indian Territory divisions, with headquarters at Little Rock, Ark. J. L. Curry, road foreman of equipment, at El Reno, Okla., has been appointed supervisor of fuel economy on the Oklahoma and Pan Handle divisions of the C., R. I. & P., and also of the Southern and Amarillo divisions of the Chicago, Rock Island & Gulf Railway, with headquarters at El Reno, Okla. J. H. Edwards, electrical foreman at Silvis, Ill., has been appointed supervisor of stationary plants, with headquarters at Chicago, with supervision over stationary plants and pumping stations. F. W. Wilson, engineer of fuel economy, has been appointed chief fuel inspector, reporting to the fuel agent. W. J. Eddy, superintendent of fuel economy, has been appointed master mechanic at El Dorado, Ark.

William T. Covert, who has been appointed principal assistant engineer of the Western Pennsylvania division of the Pennsylvania Railroad, with office at Pittsburgh, Pa., as has already been announced in these columns, was born on January 4, 1873, at Philadelphia, Pa., and was educated in the public schools and in 1890 graduated from the Peirce School of Business of his native town. In May of the same year he entered the service of the Pennsylvania Railroad as a clerk in the accounting department at Philadelphia. The following September he was transferred to the maintenance of way department as a rodman and later served in various positions in connection with construction work being carried out in New Jersey and the city of New York by the engineer of maintenance of the United Railroads of New Jersey. During this time he attended Cooper Institute, New York, and graduated with the degree of B. of S. On October 3, 1895, he was transferred to the office of the principal assistant engineer, of the Pennsylvania Railroad, at Altoona, Pa., and in June, 1897, was appointed assistant supervisor of the Philadelphia division at Paoli. He was promoted to supervisor of the Renova division at Johnsonburg, Pa., in July, 1900, and subsequently served consecutively as supervisor at Philadelphia yard, assistant engineer of the Chautauqua division, assistant engineer of the Eastern and Susquehanna division and as division engineer of the Philadelphia Terminal division, from which position he was promoted on October 25 to principal assistant engineer of the Western Pennsylvania division of the same road, with headquarters at Pittsburg, as above noted.

W. T. Covert

Purchasing

F. W. Taylor, general purchasing agent of the Pacific Electric with headquarters at Los Angeles, Cal., has been appointed general purchasing agent of the Southern Pacific to succeed I. O. Rhoades, retired, with headquarters at San Francisco, Cal., effective December 1.

OBITUARY

W. H. Knight, former traffic manager of the Union Pacific, died at Hinsdale, Ill., on December 10.

E. A. Dawson, who retired as manager of the Star Union Line, Pennsylvania System, at Chicago on December 1, 1915, died in Evanston, Ill., on December 7.

Thomas A. Ayres, assistant purchasing agent of the Erie with office at New York, died on December 9, at his home in Ridgewood, N. J., at the age of 38.